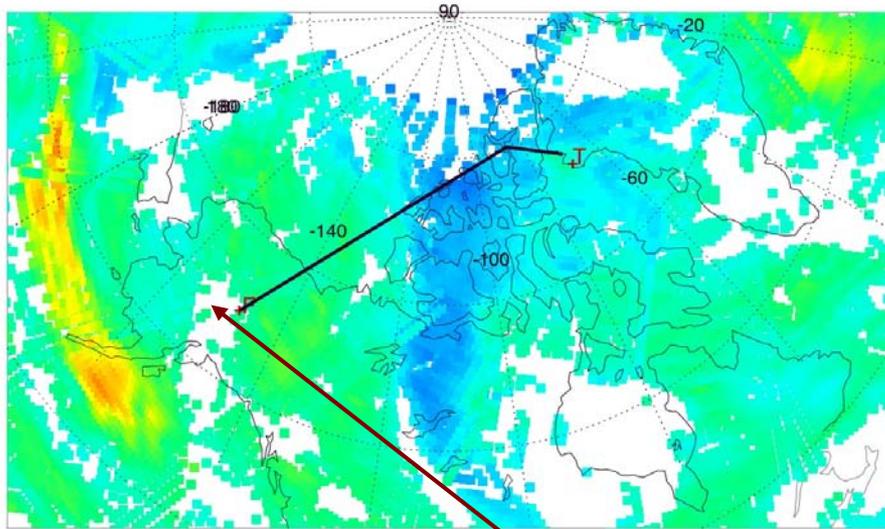
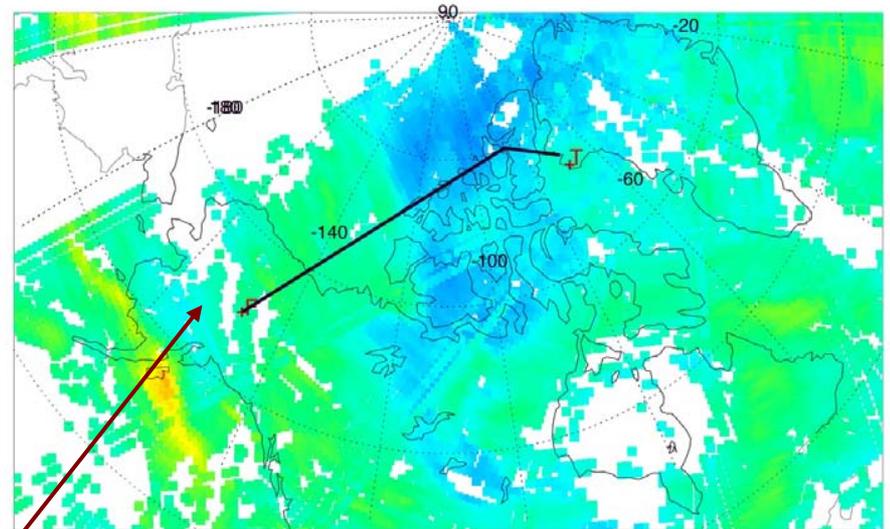


AIRS NRT ARCTAS Support: Latest AIRS CO

AIRS CO VMR (ppbv) at 500mb on 20080405 for ARCTAS



AIRS CO VMR (ppbv) at 500mb on 20080406 for ARCTAS



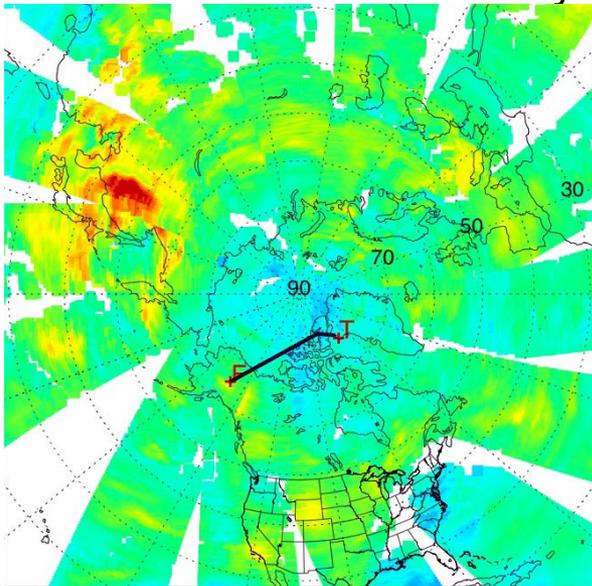
0.0 27.8 55.6 83.3 111.1 138.9 166.7 194.4 222.2 250.0 0.0 27.8 55.6 83.3 111.1 138.9 166.7 194.4 222.2 250.0

CONTACT: Dr. Juying Warner <juying@umbc.edu>; ACKNOWLEDGEMENT: AIRS NRT products by NASA DA; CONTACT: Dr. Juying Warner <juying@umbc.edu>; ACKNOWLEDGEMENT: AIRS NRT products by NASA DA;

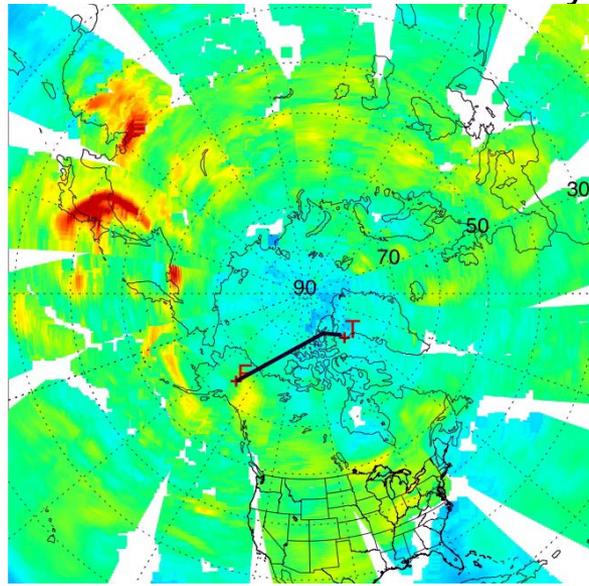
Latest AIRS CO shows cleaner air near Fairbanks based on the nighttime measurements between April 05 and 06.

AIRS NRT ARCTAS Support: Asian Transport Continues

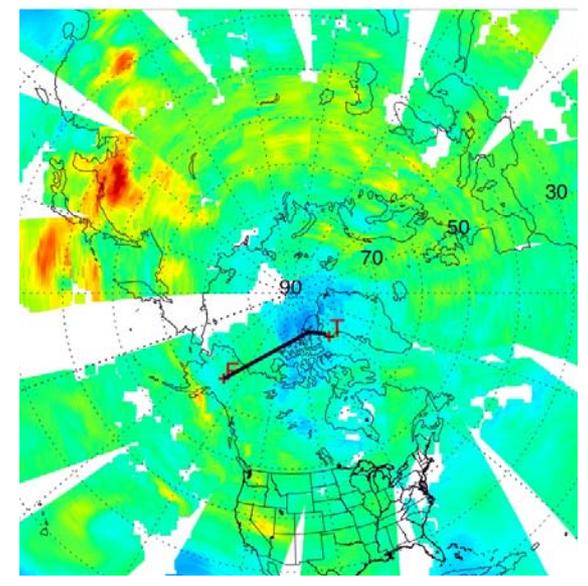
CO 500mb 20080404 day



CO 500mb 20080405 day



CO 500mb 20080406 Full

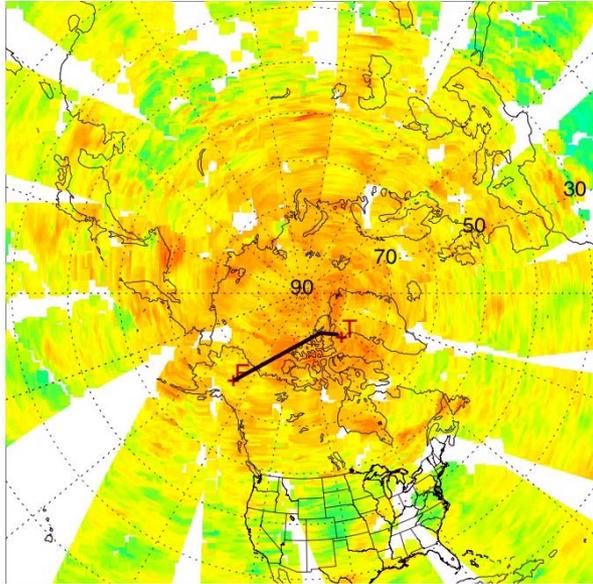


CONTACT: Dr. Juying Warner <juying@umbc.edu>; ACKNOWLEDGEMENT: AIRS NRT products by NASA DAAC

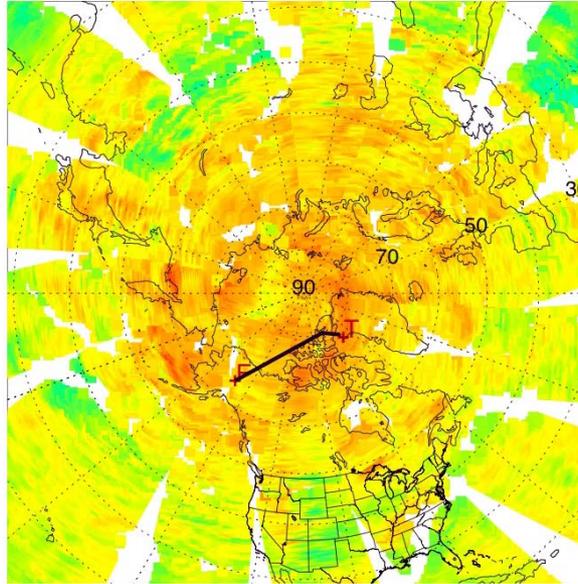
AIRS NRT ARCTAS Support:

CH₄ April 4-6, 08

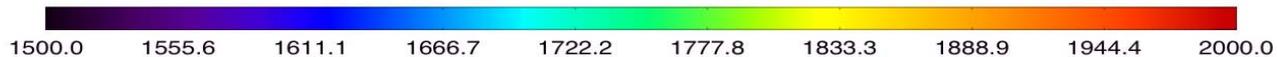
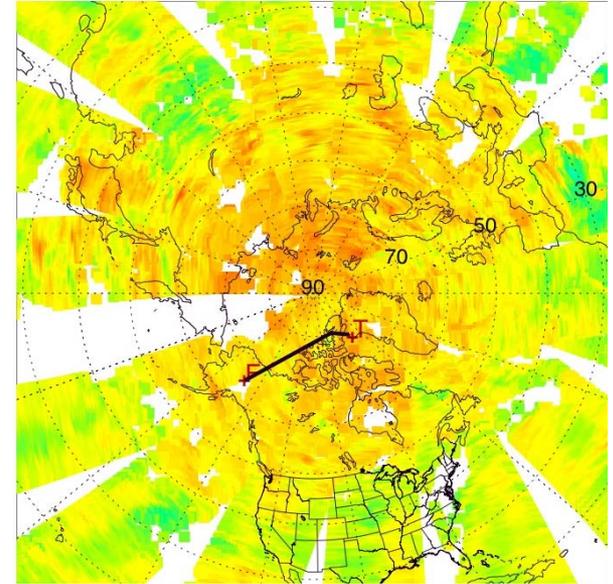
CH₄ 500mb 20080404



CH₄ 500mb 20080405



CH₄ 500mb 20080406

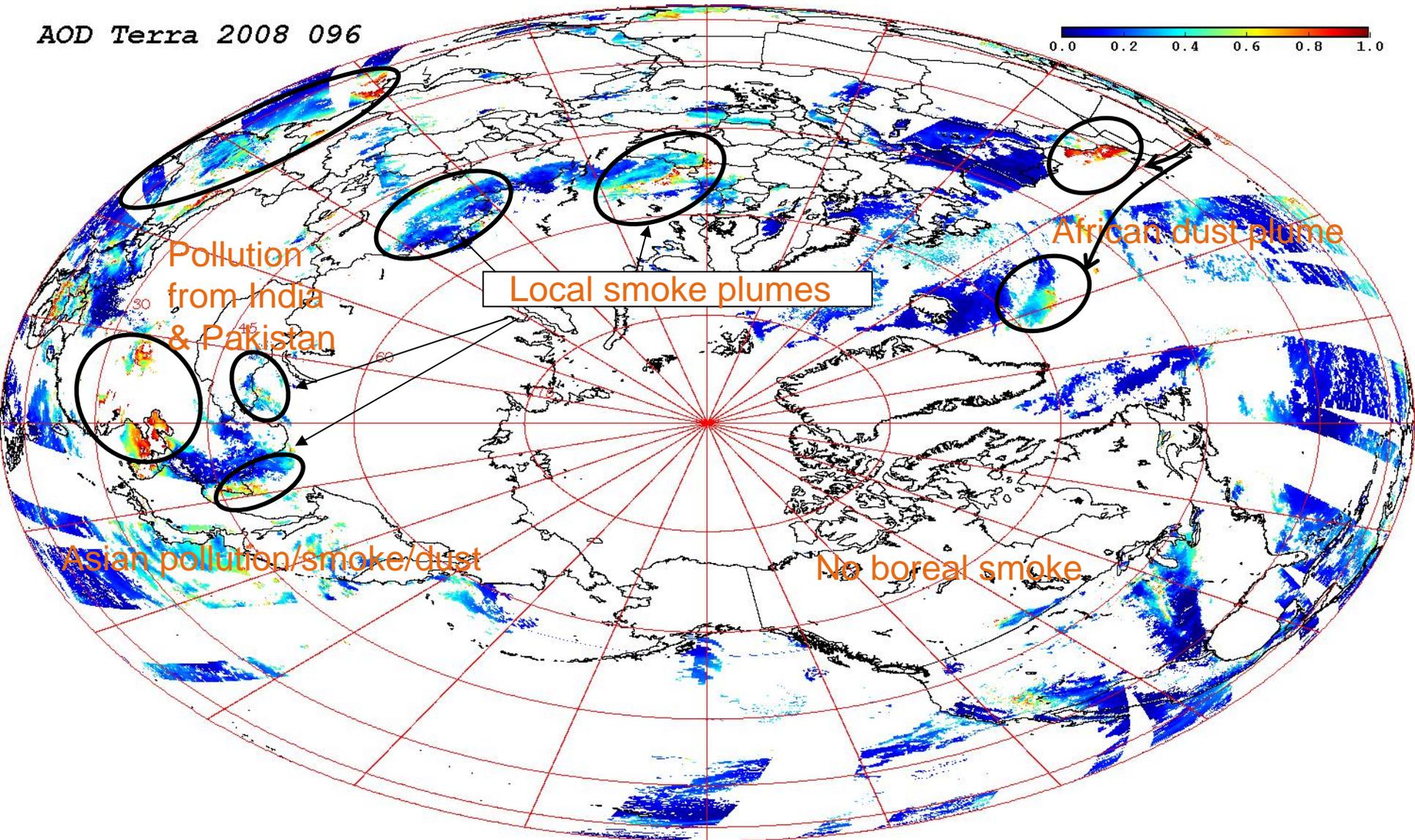


CONTACT: Dr. Juying Warner <juying@umbc.edu>; ACKNOWLEDGEMENT: AIRS NRT products by NASA DAAC

- CH₄ concentrations consistently high at 500mb over the Arctic.
- AIRS CH₄ needs validation with ARCTAS measurements.

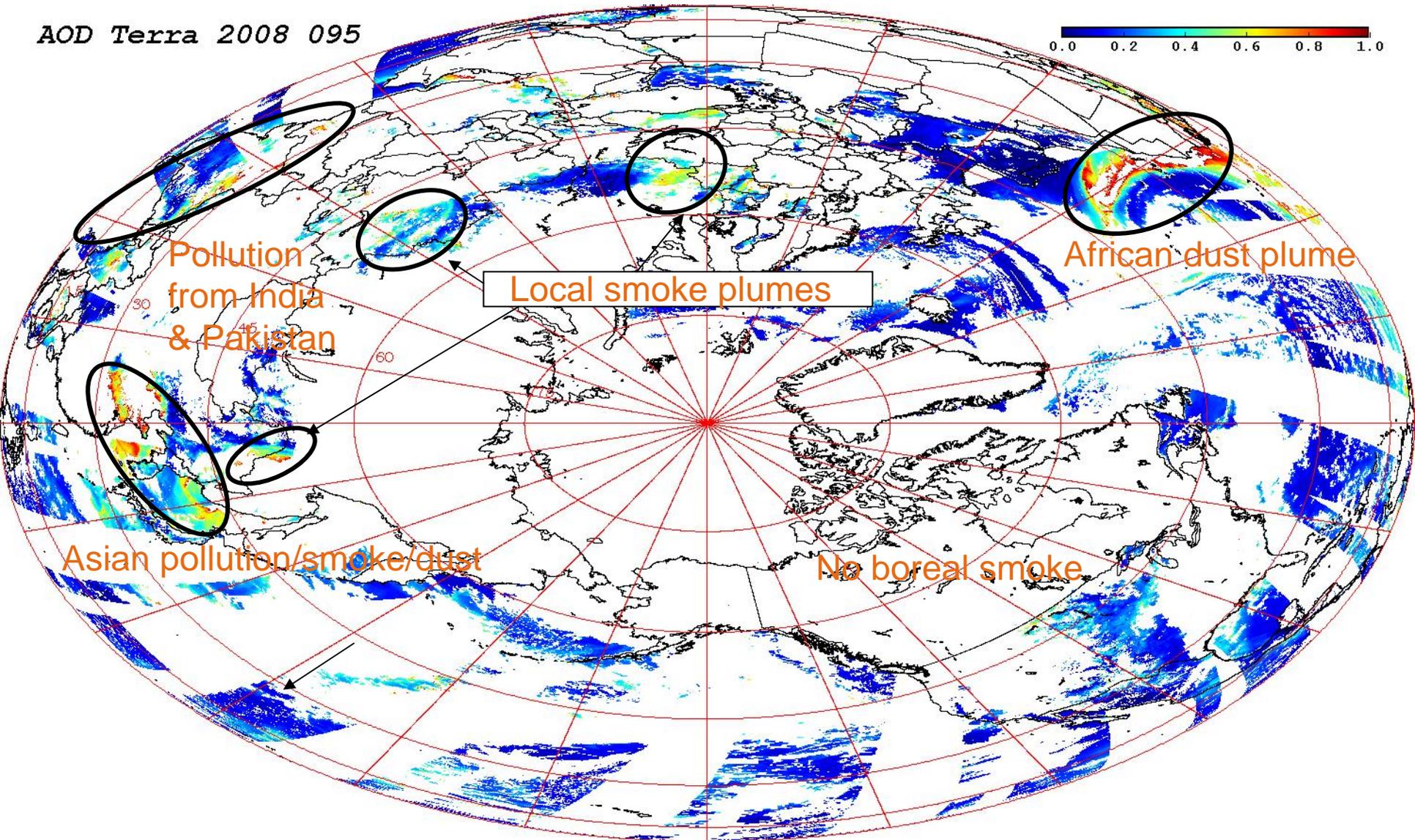
MODIS AOD Hot Spots in Northern Hemisphere (0° - 90°N)

AOD Terra 2008 096



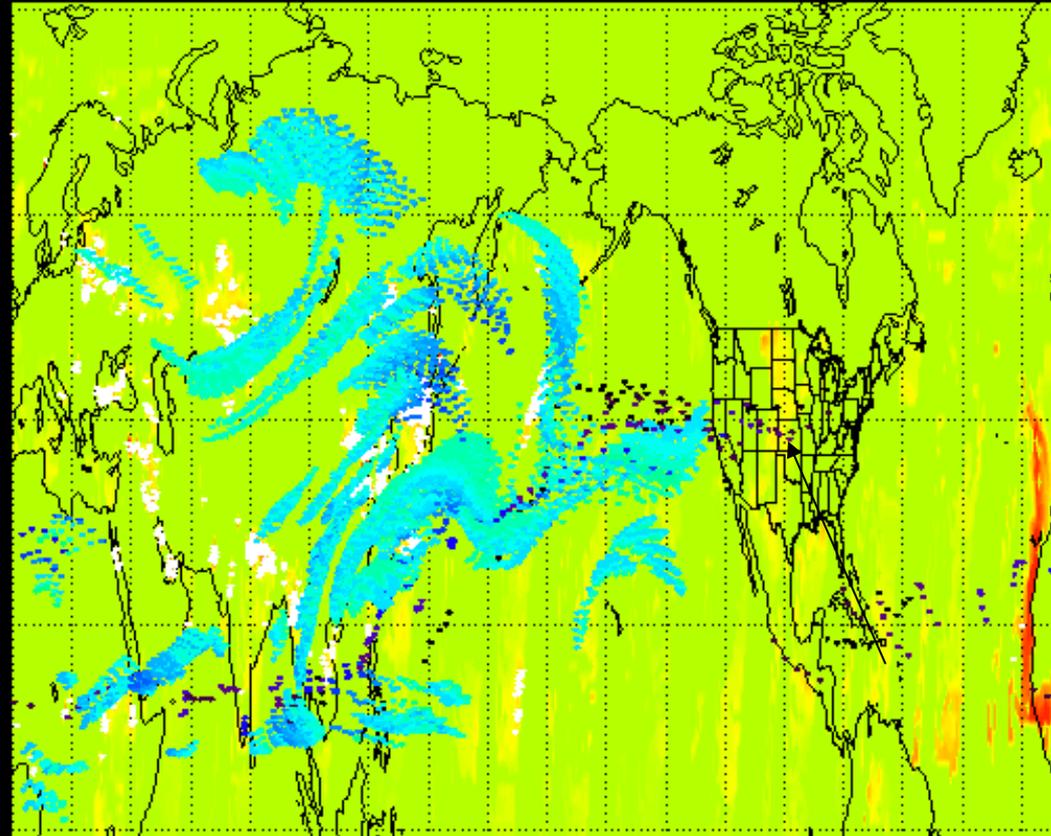
MODIS AOD Hot Spots in Northern Hemisphere (0° - 90°N)

AOD Terra 2008 095



Aerosol Trajectory Based Upon MODIS AOD and GEOS-5 Winds

MODIS Trajectory Initialized 2008040400Z Valid 2008040900Z

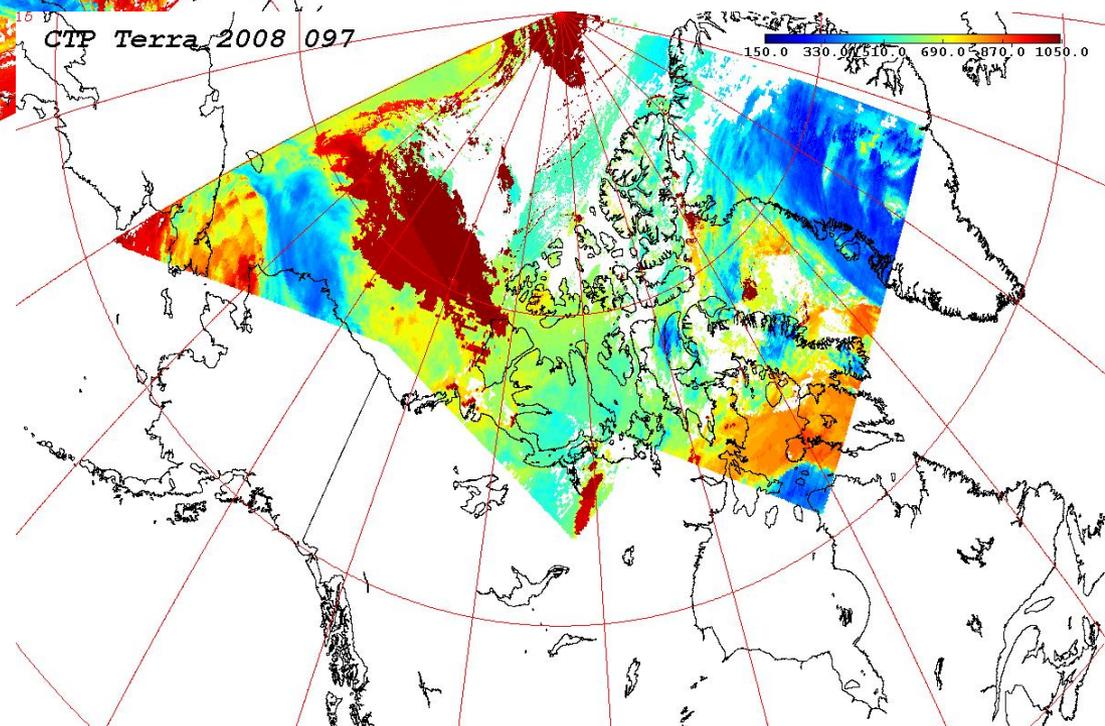
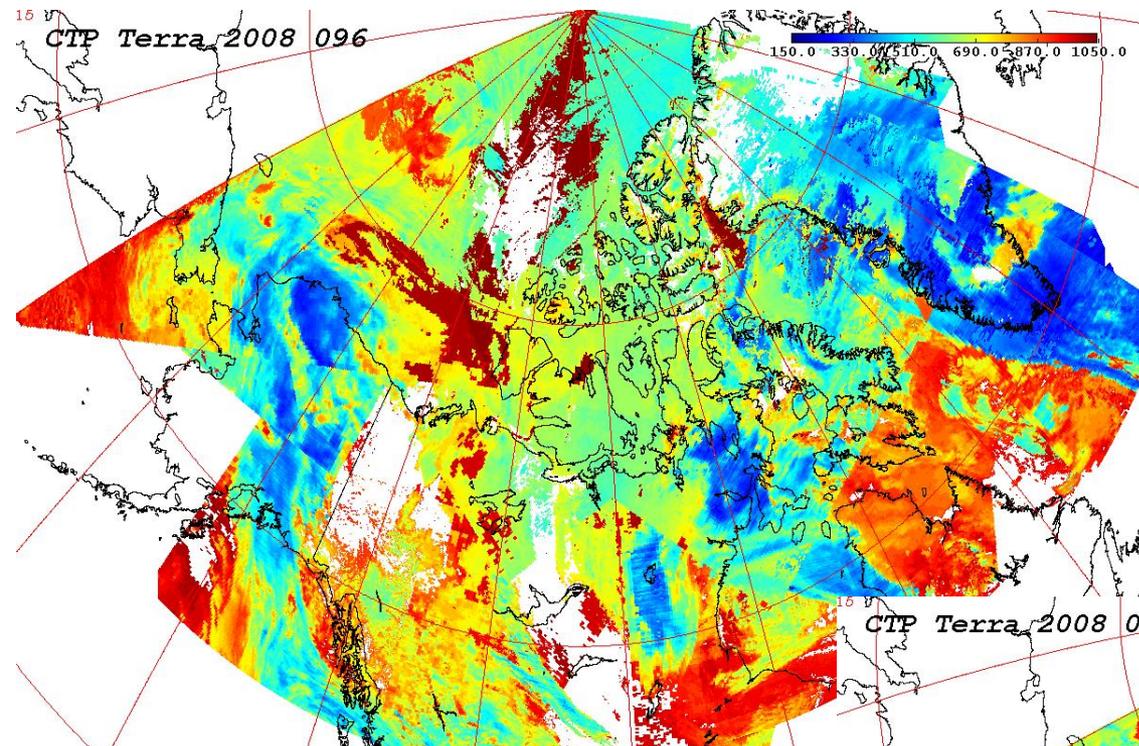


0.0 0.2 0.4 0.6 0.8 1.0
AOD

200 400 600 800 1000
Pressure (mb)

(Courtesy: Brad Pierce & Duncan Fairlei for Trajectory Package)

MODIS Cloud Top Pressure

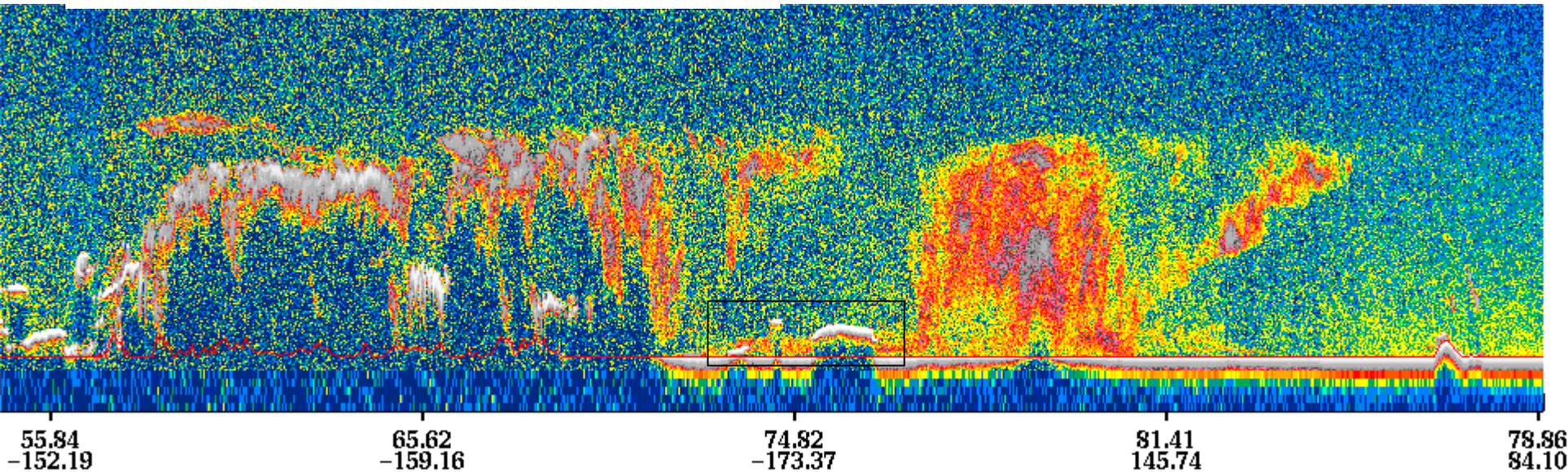
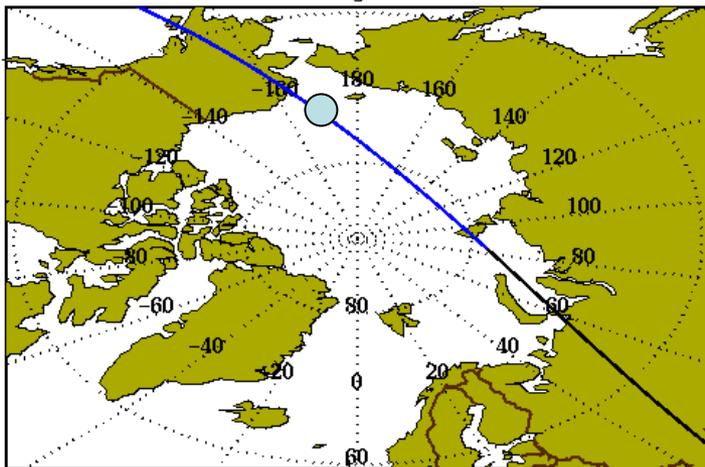


CALIPSO Observations

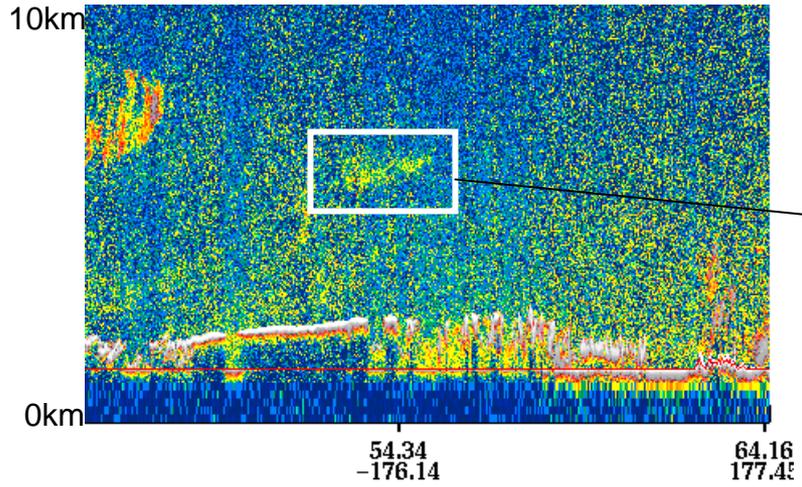
4 April 2008

04 April 2230Z

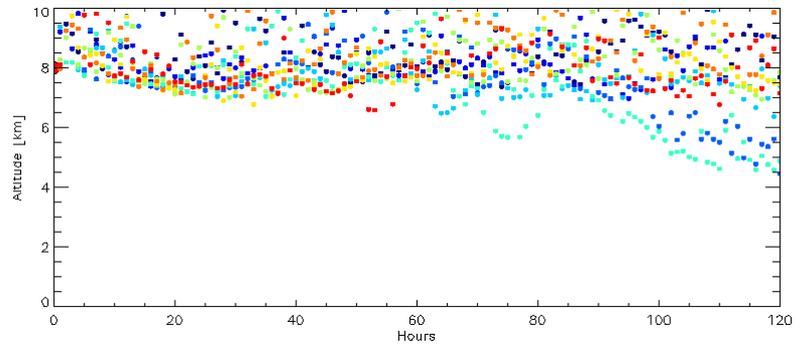
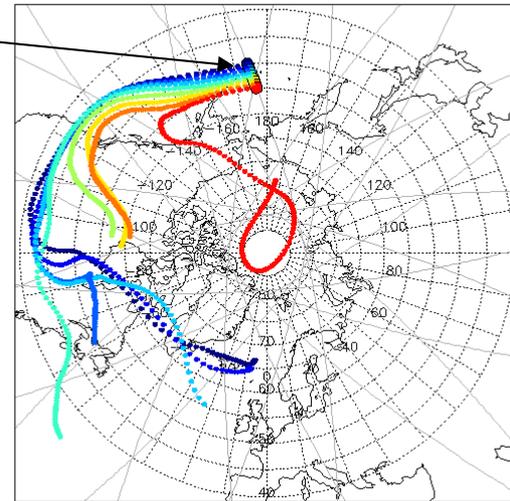
2008-04-04 22-30-00 UTC Half of Hour Conditions
Version: 2.01 Image Date: 04/06/2008



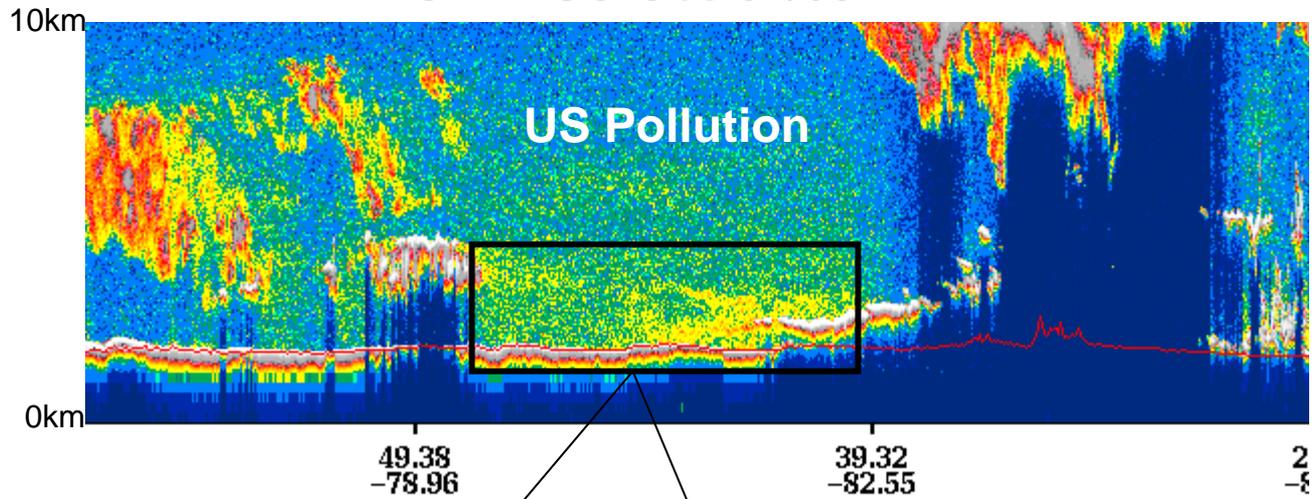
CALIPSO Obs 04/05



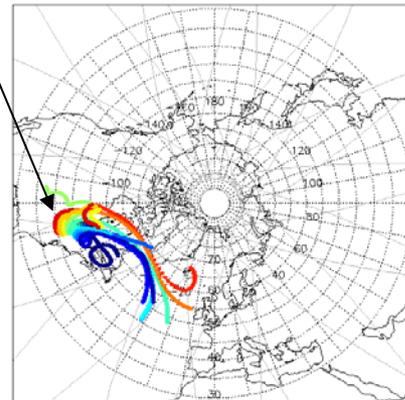
120hr CALIPSO Trajectories Initialized 2008040500 Valid 2008041000
Initial Altitude: 8000m



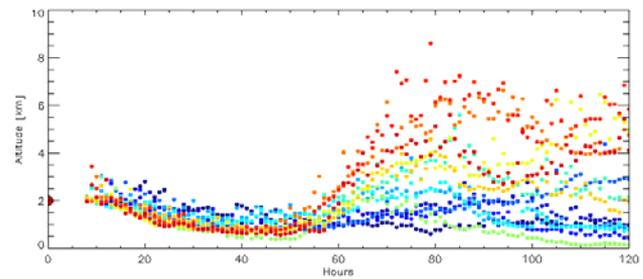
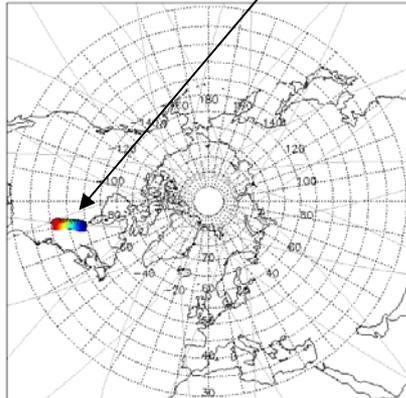
CALIPSO Obs 04/05



130hr CALIPSO Trajectories Initialized 2008040500 Valid 2008041000
Initial Altitude: 2000m

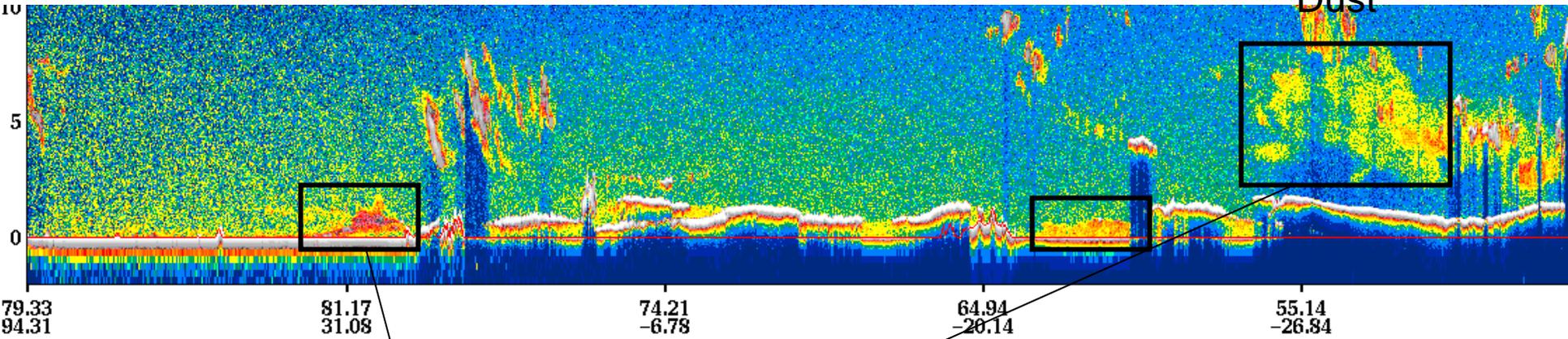


12hr CALIPSO Trajectories Initialized 2008040500 Valid 2008040512
Initial Altitude: 2000m

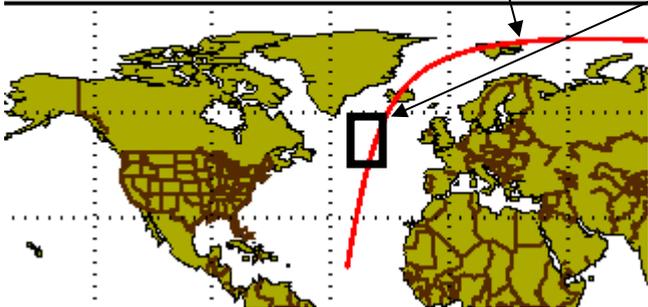


CALIPSO Obs 04/05

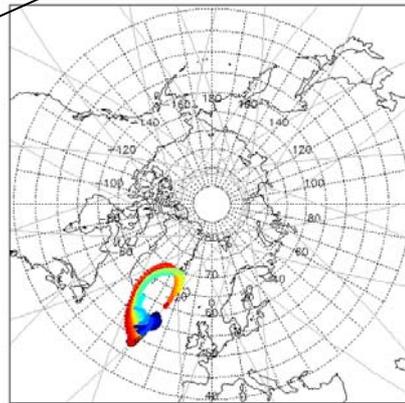
Dust



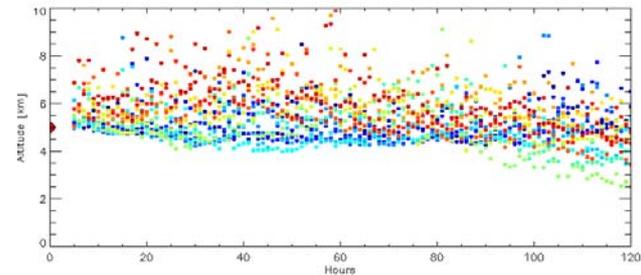
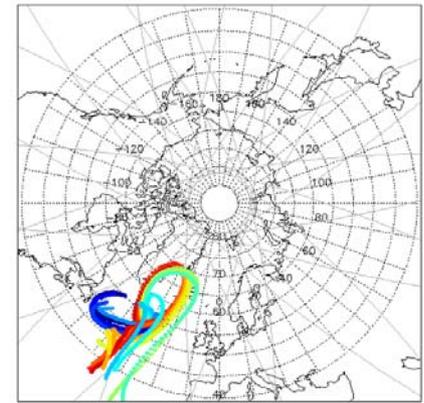
2008-04-05 03-00-00 UTC Start of Hour
Version: 2.01 Image Date: 04/06



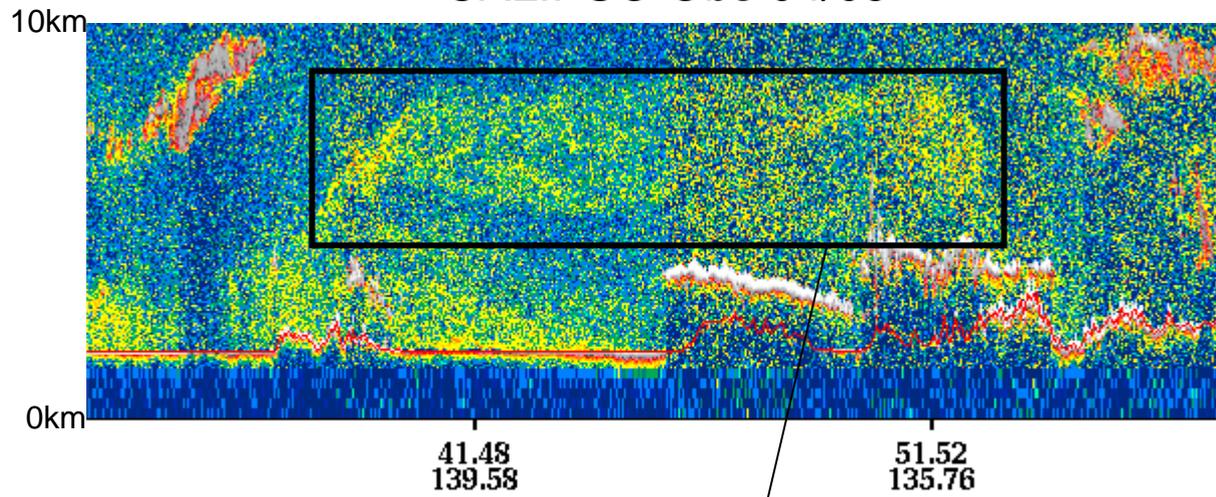
48hr CALIPSO Trajectories Initialized 2008040500 Valid 2008040700
Initial Altitude: 5000m



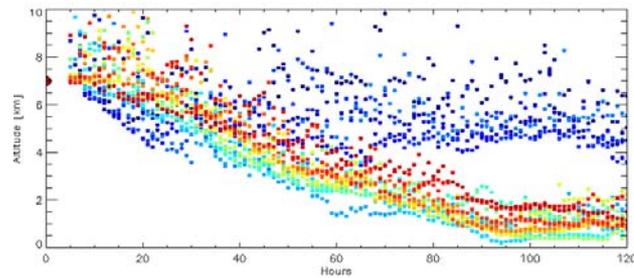
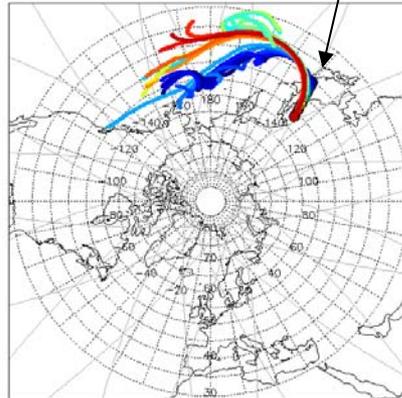
120hr CALIPSO Trajectories Initialized 2008040500 Valid 2008041000
Initial Altitude: 5000m



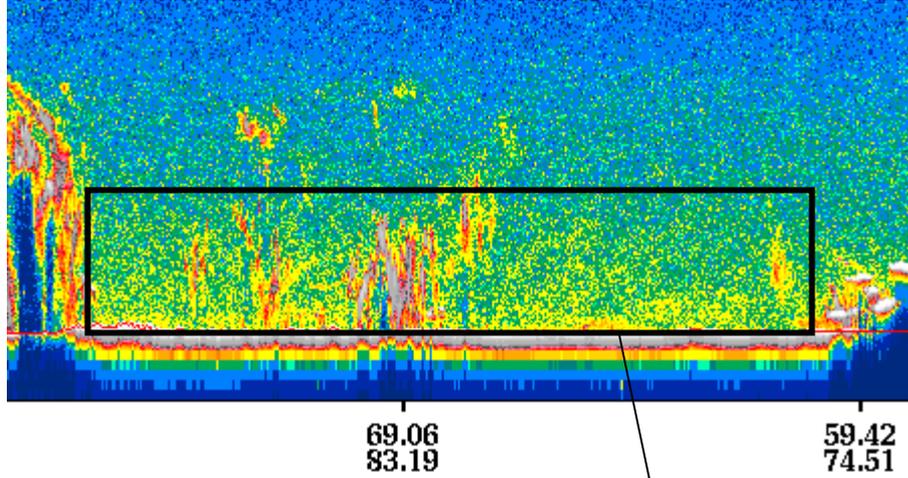
CALIPSO Obs 04/05



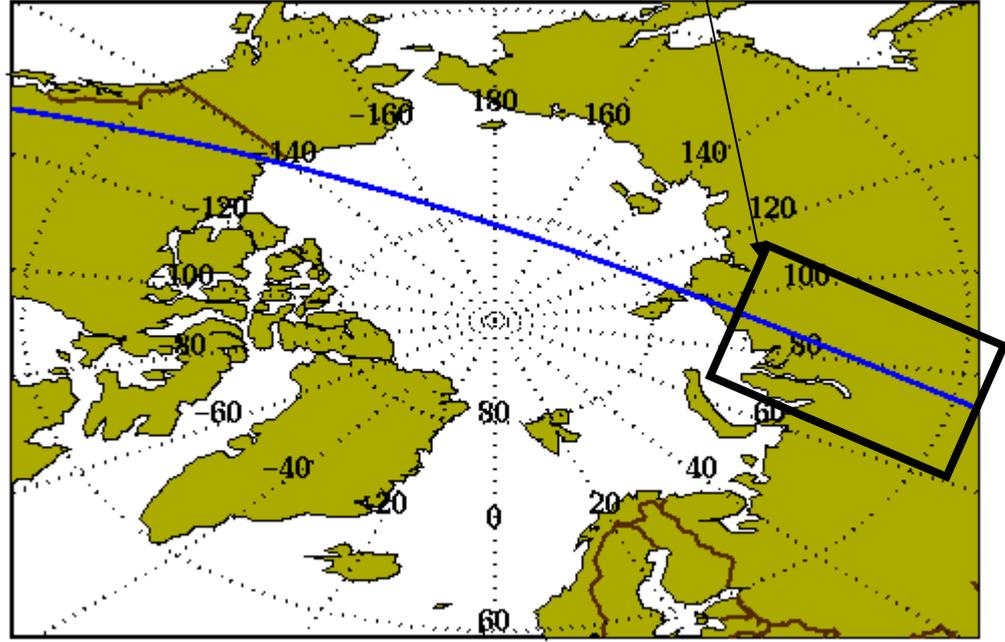
120hr CALIPSO Trajectories Initialized 2008040500 Valid 2008041000
Initial Altitude: 7000m



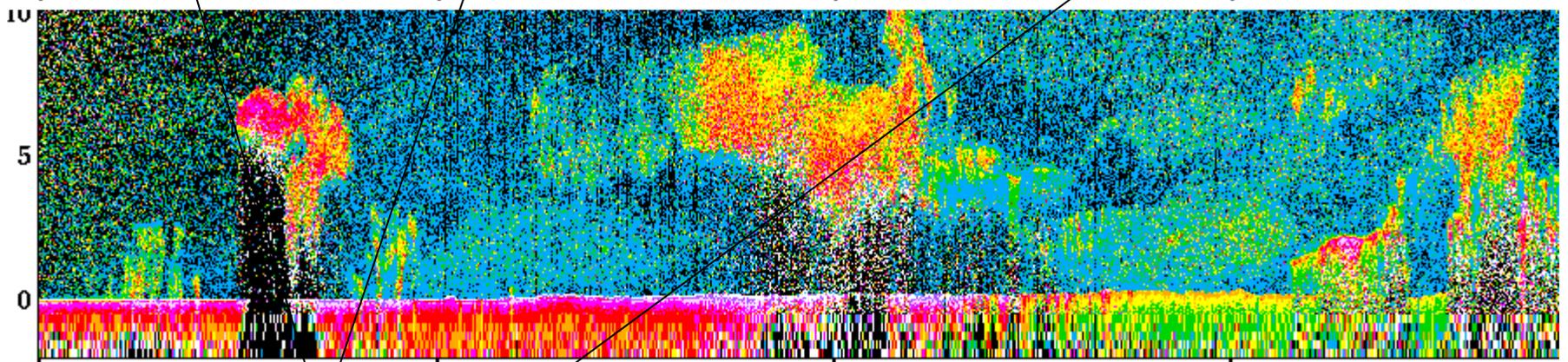
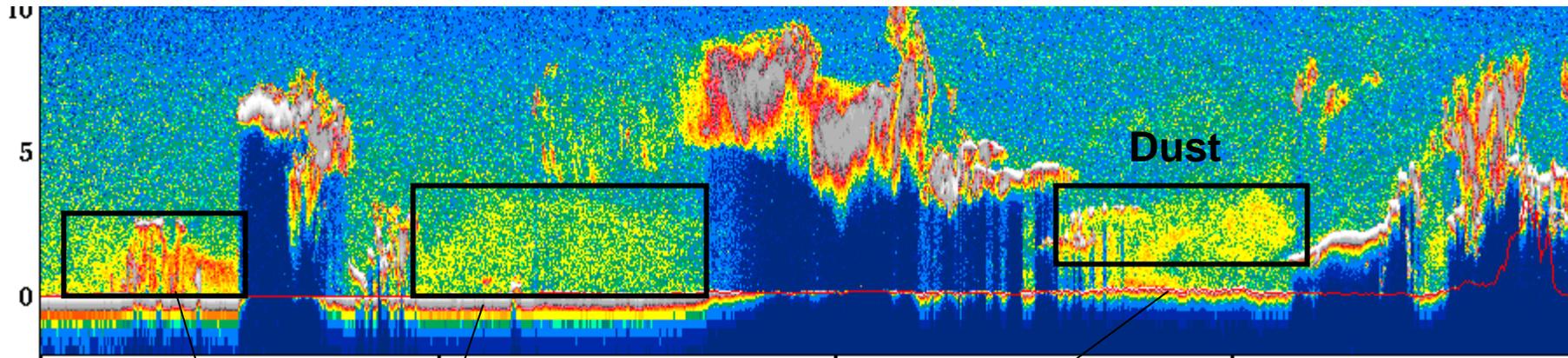
CALIPSO Obs 04/04



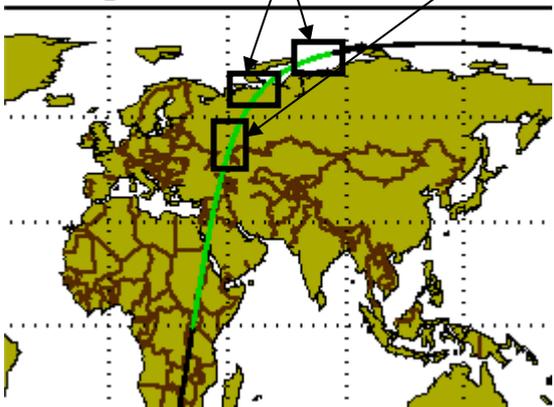
2008-04-04 21-00-00 UTC Start of Hour Conditions
Version: 2.01 Image Date: 04/06/2008



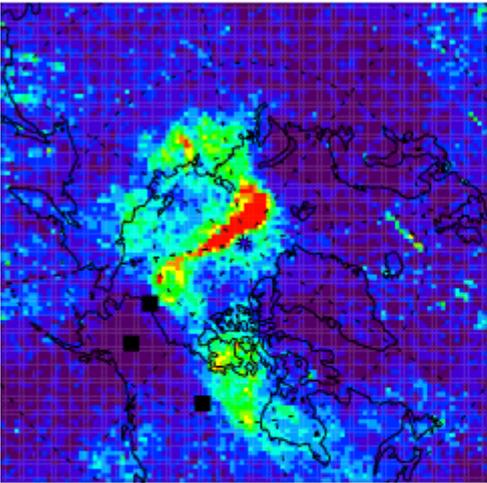
CALIPSO Obs 04/04



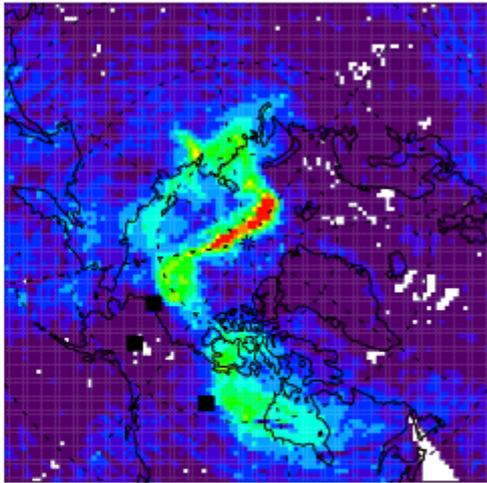
78.74 70.30 60.72 50.82
83.41 00 UTC Half of Hour Conditions 50.66 45.26
1 Image Date: 04/06/2008



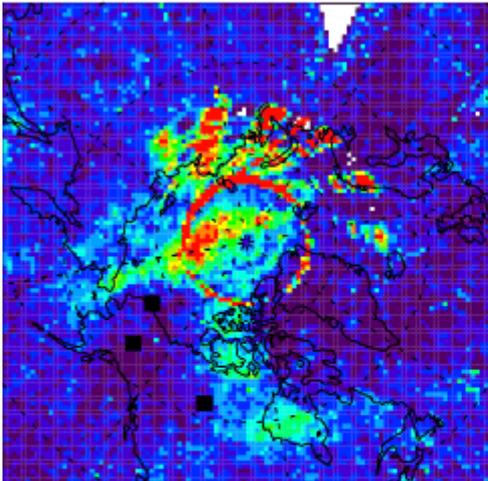
OMI_04-04



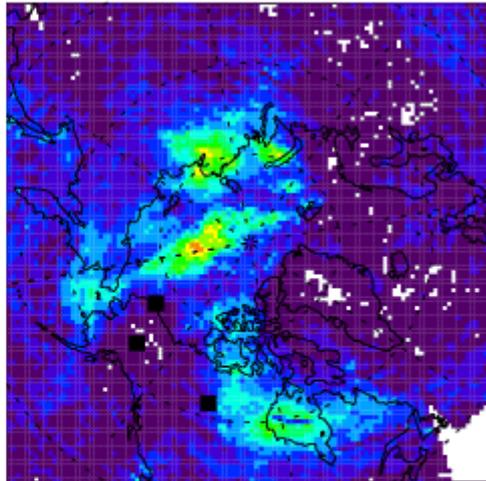
GOME2_04-04



OMI_04-05



GOME2_04-05



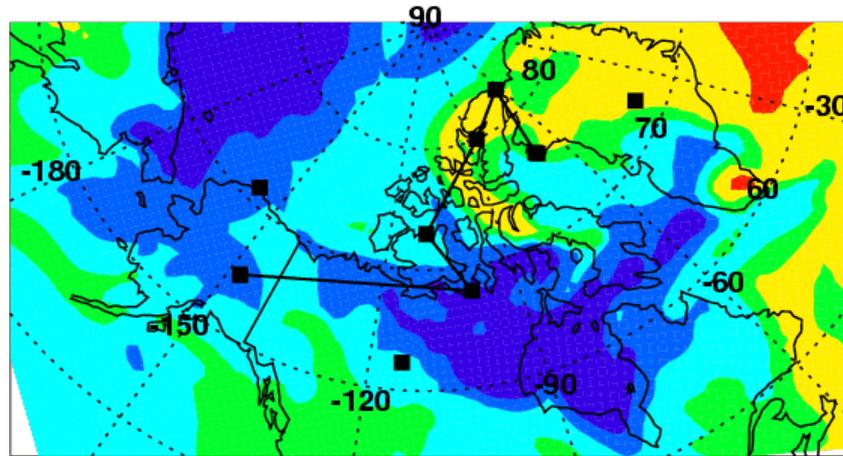
BrO signal in over the northern part of Hudson Bay is weakening



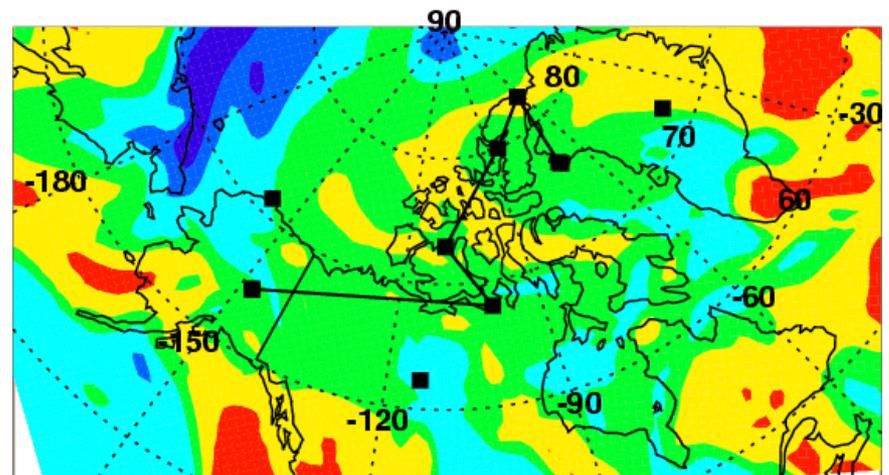
0 2 4 6 8 10

$[\times 10^{13} \text{ mol/cm}^2]$

O₃ (ppbv) at surface, Apr-08_2000 UTC

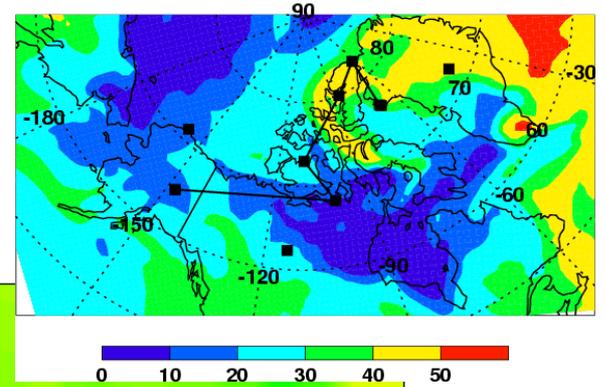


O₃ (ppbv) at 300m, Apr-08_2000 UTC

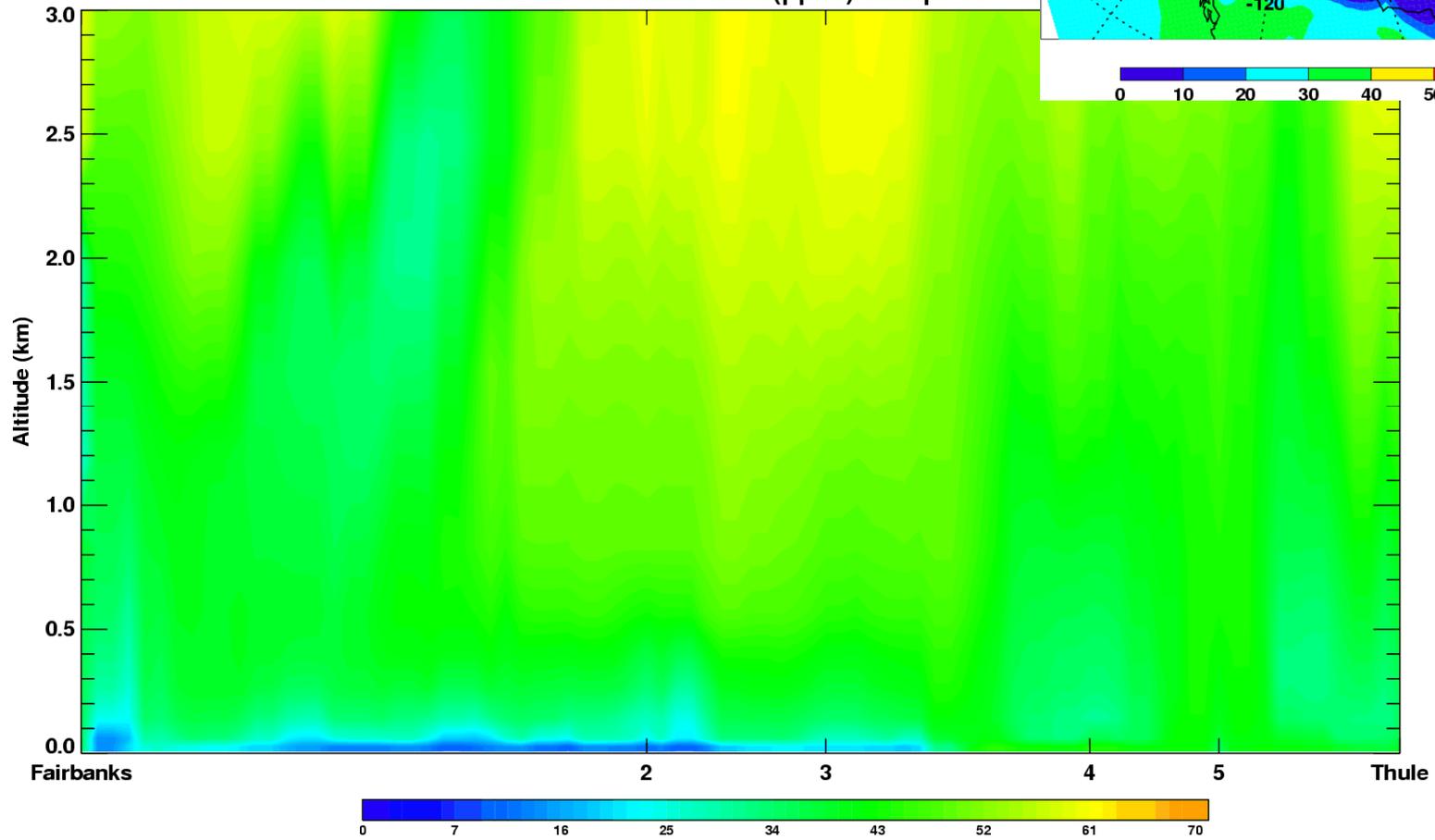


Low O₃ features are very close to surface

O₃ (ppbv) at surface, Apr-08_2000 UTC

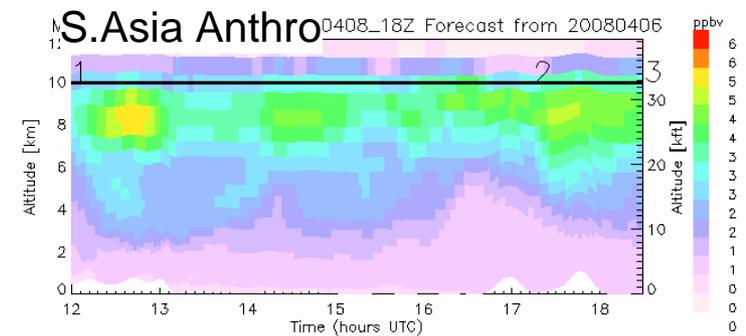
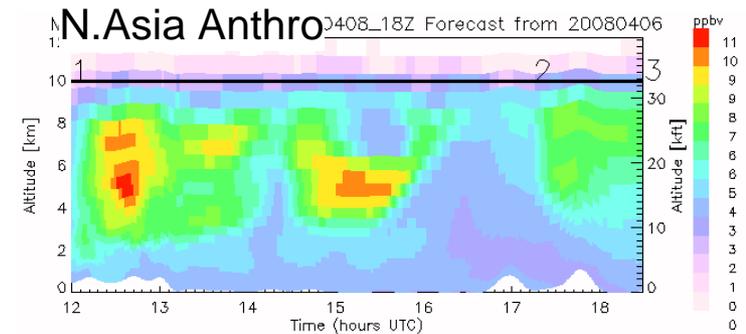
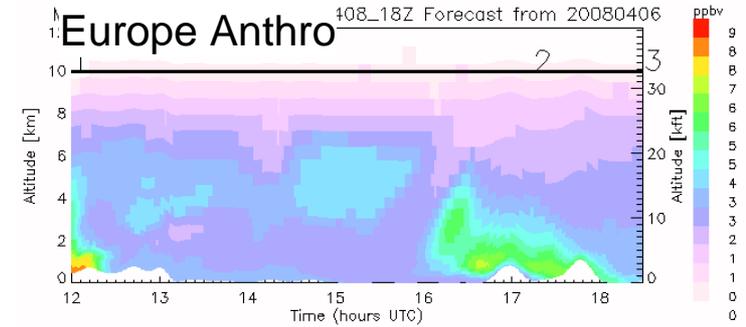
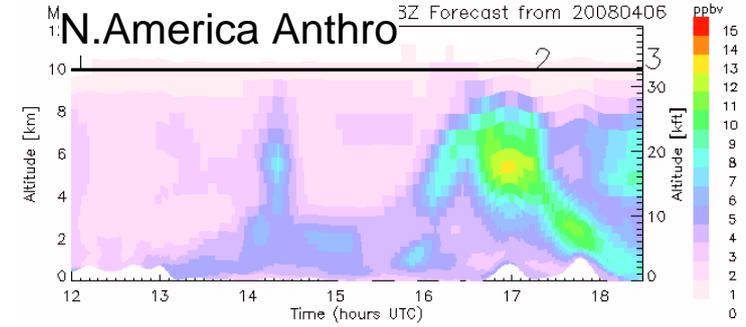
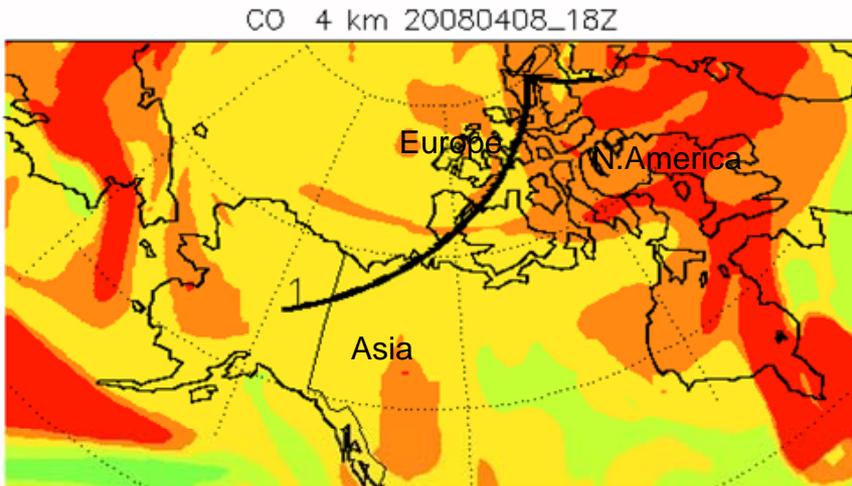
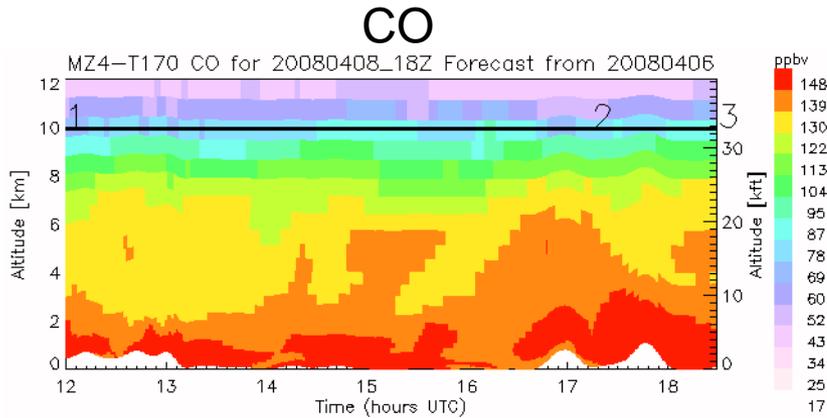


Ozone Vertical Profile(ppbv) on Apr-08



Apr 8 Fairbanks-Eureka-Thule MZ4 forecast from Apr 6 for Apr 8 18Z

Weak plumes, aged pollution for whole flight
Primarily Asian at start of flight, N. American and European over Eureka and Thule

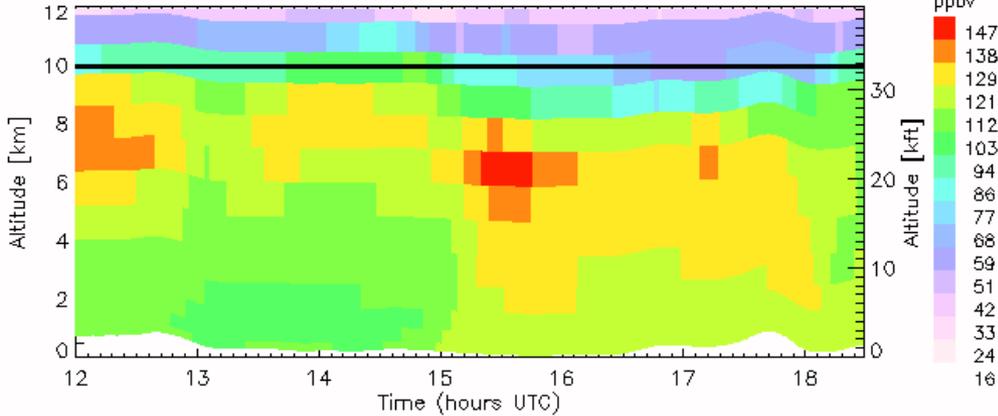


Apr 8 Fairbanks-Eureka-Thule CAM forecast from Apr 5 for Apr 8 18Z

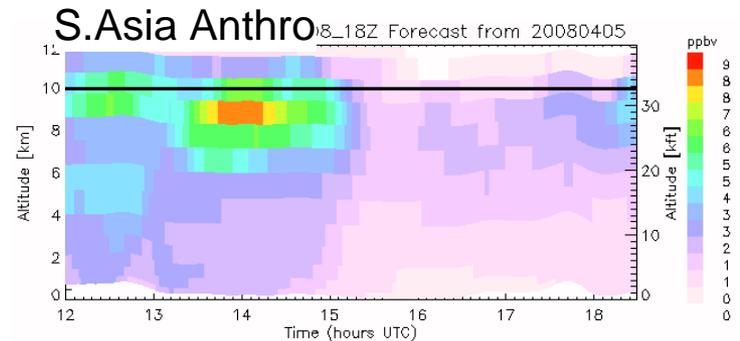
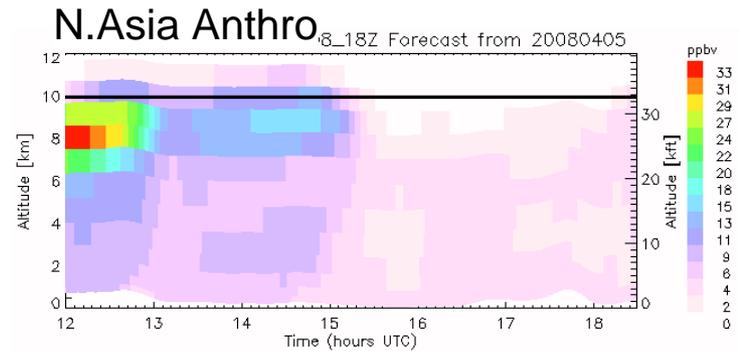
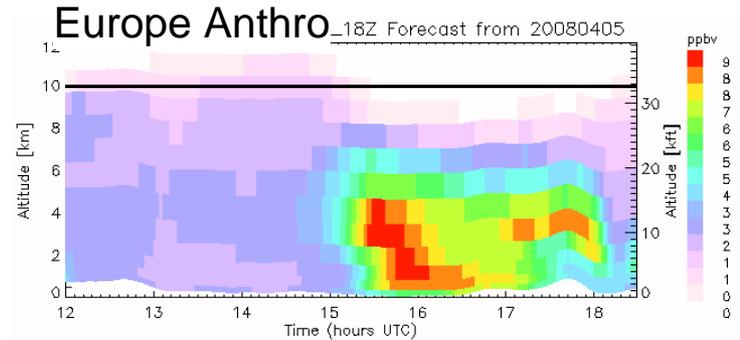
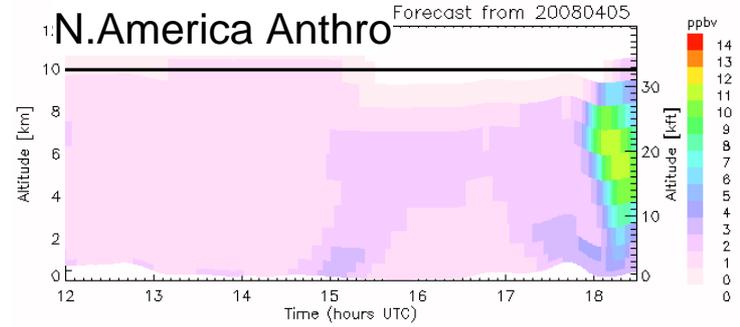
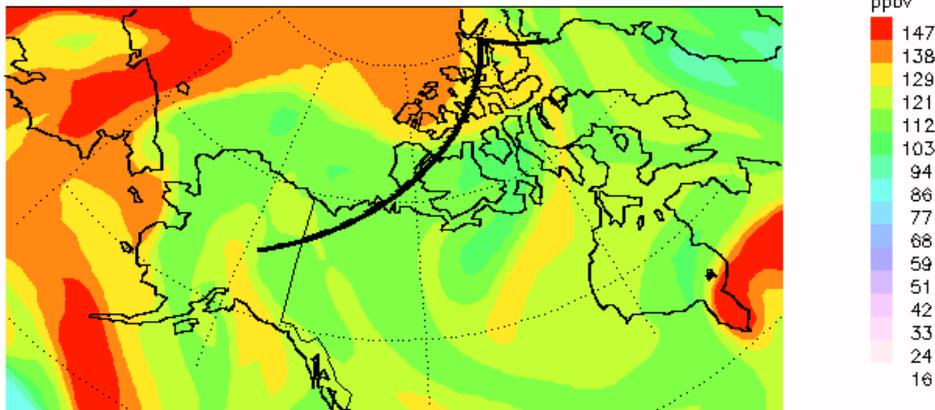
CO – assimilated MOPITT
CO at higher altitudes than MOZART
Tracers – independent of assim.
Similar to MOZART

CO

CAM CO for 20080408_18Z Forecast from 20080405



CAM CO 4 km 20080408_18Z

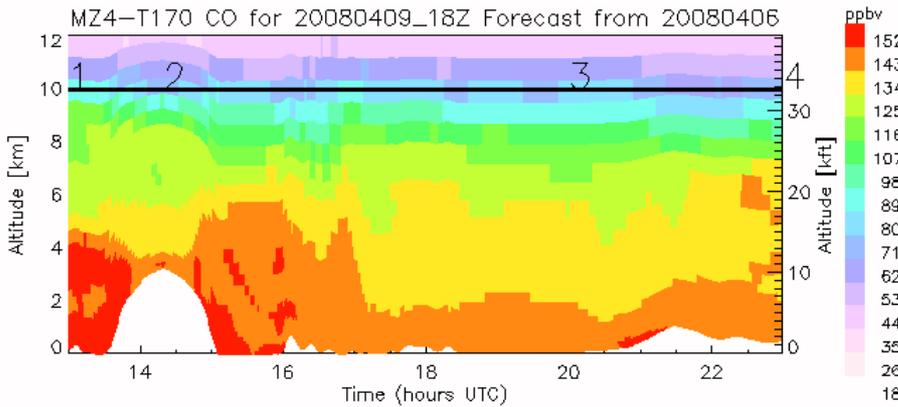


Apr 9 Thule-Summit-Barrow-FAI MZ4 forecast from Apr 6 for Apr 9 18Z

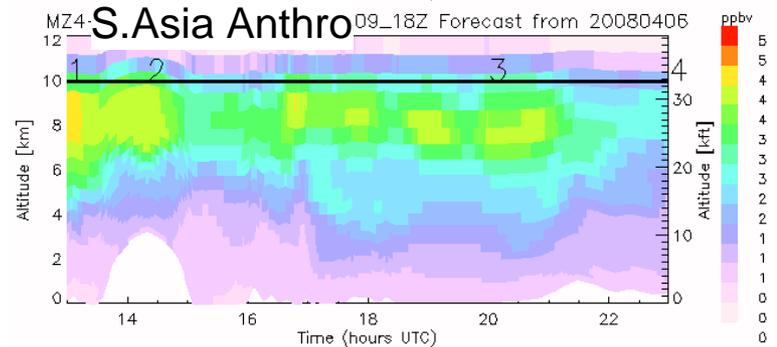
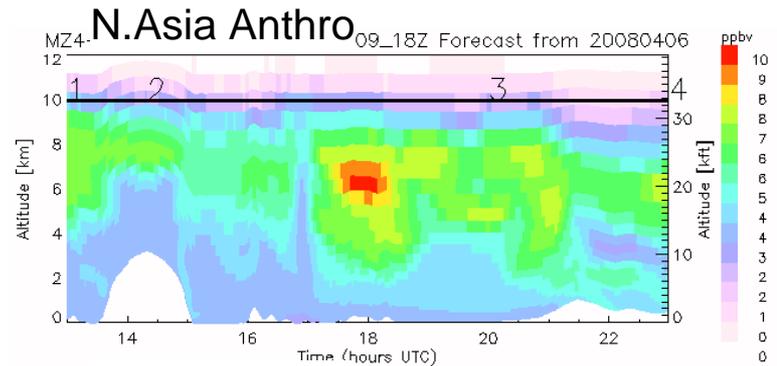
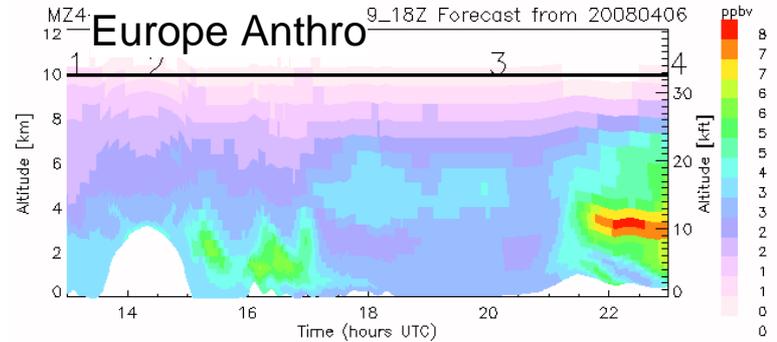
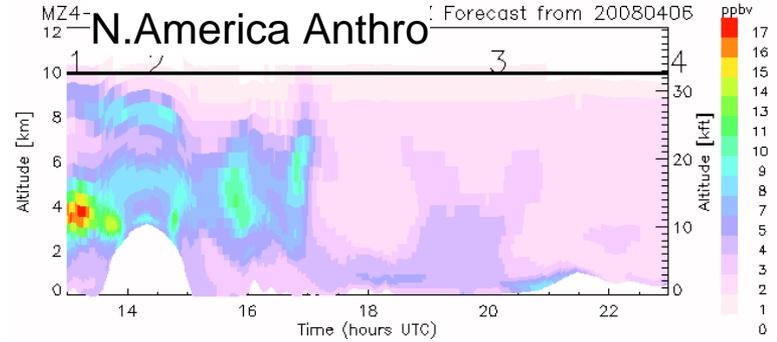
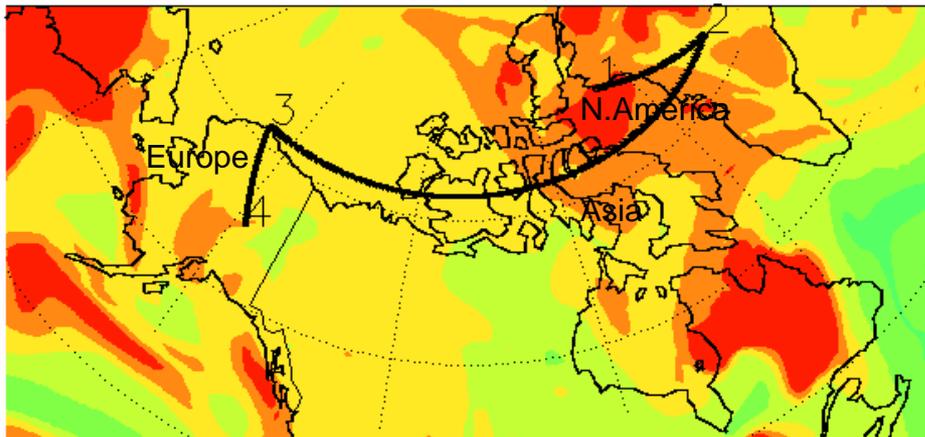
Similar conditions to 8th – aged pollution
Asian at 6-9 km

European plume between Barrow and FAI

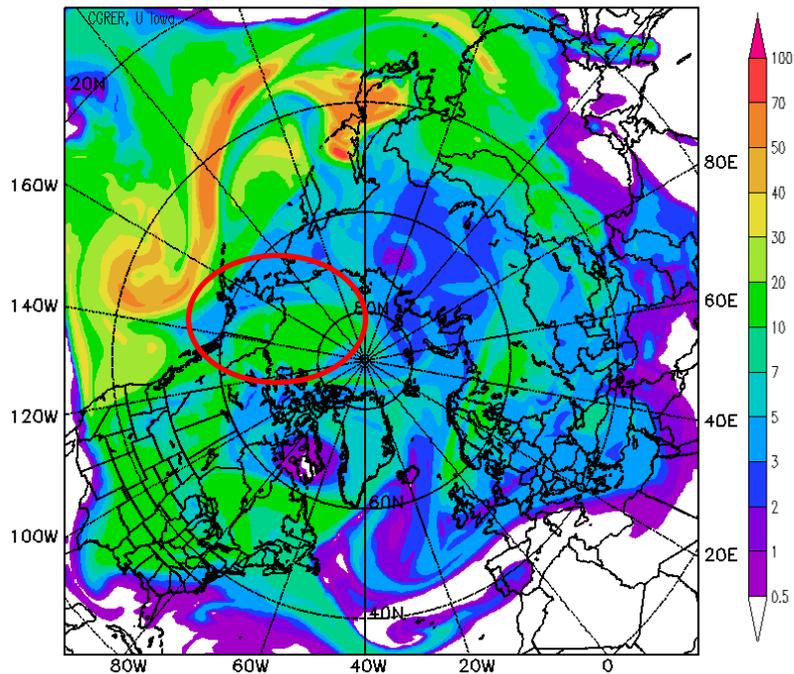
CO



CO 4 km 20080409_18Z

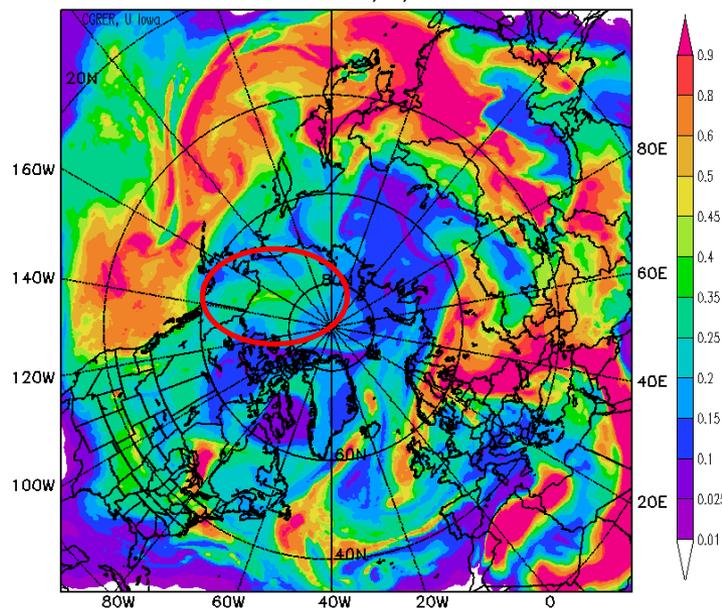


Simulated Anthro_CO (ppbv) in the 8.4km layer at 18UTC, 04/7/2008

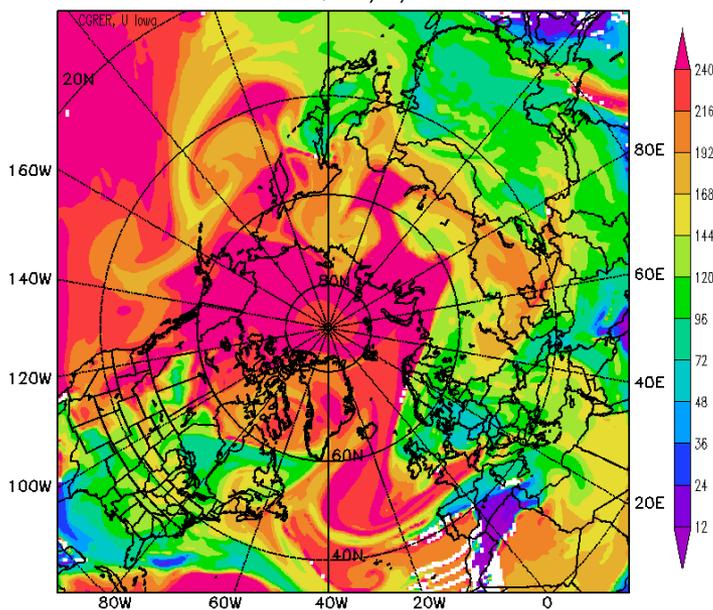


April 7th Possible Sortie?

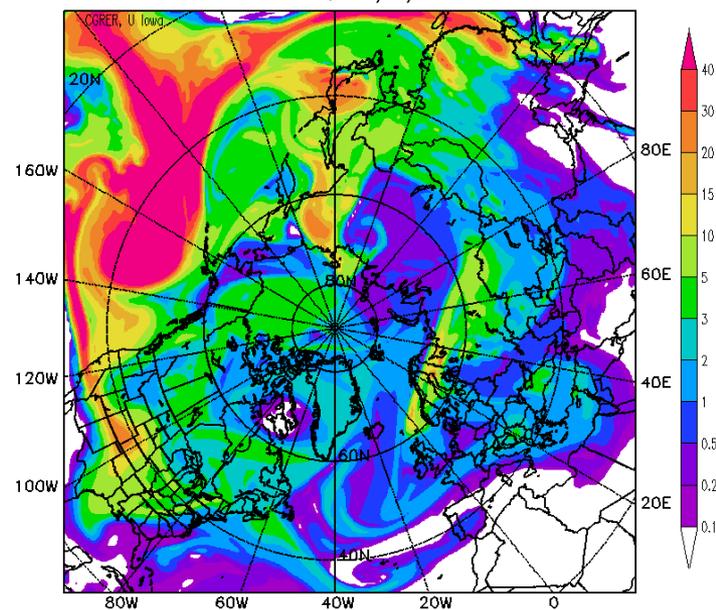
Simulated Column TOTAL_Aerosol_Optical_Depth at 18UTC, 04/7/2008



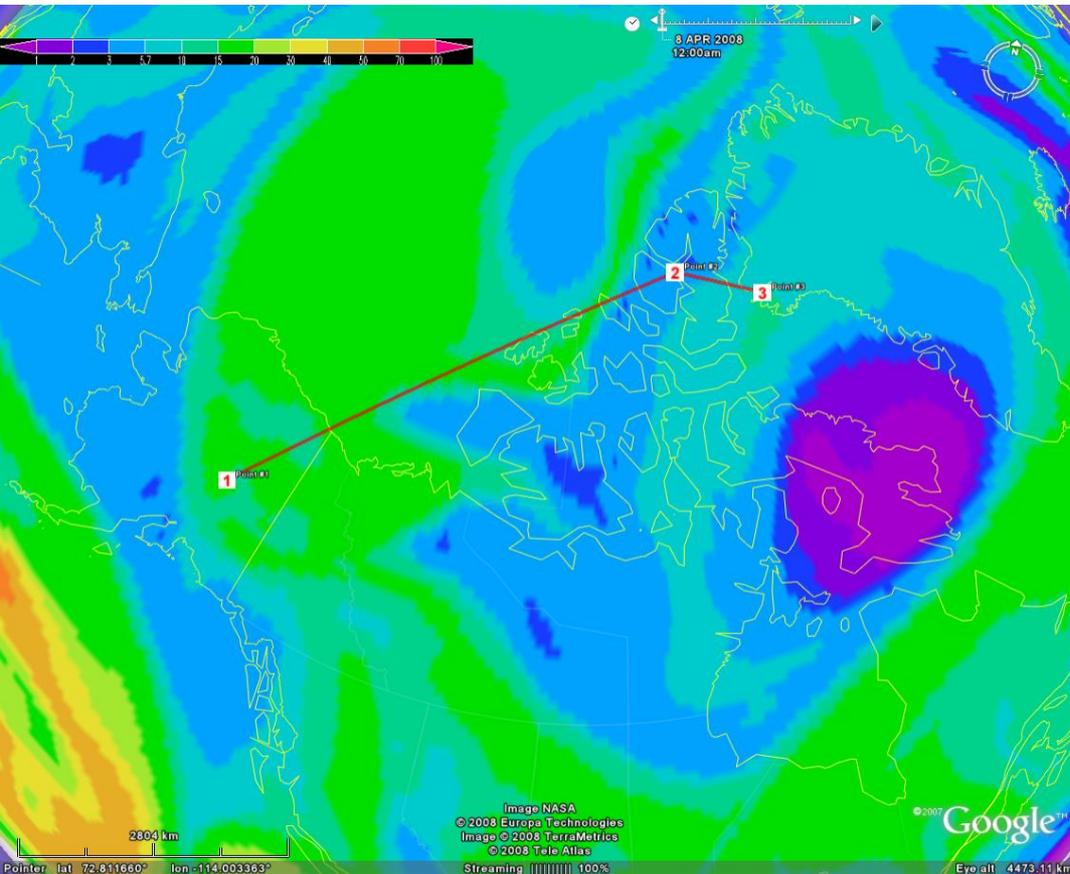
Simulated VOC_Averaged Age (hour) in the 5.5km layer at 18UTC, 04/7/2008



Simulated BB_CO (ppbv) in the 8.4km layer at 18UTC, 04/7/2008



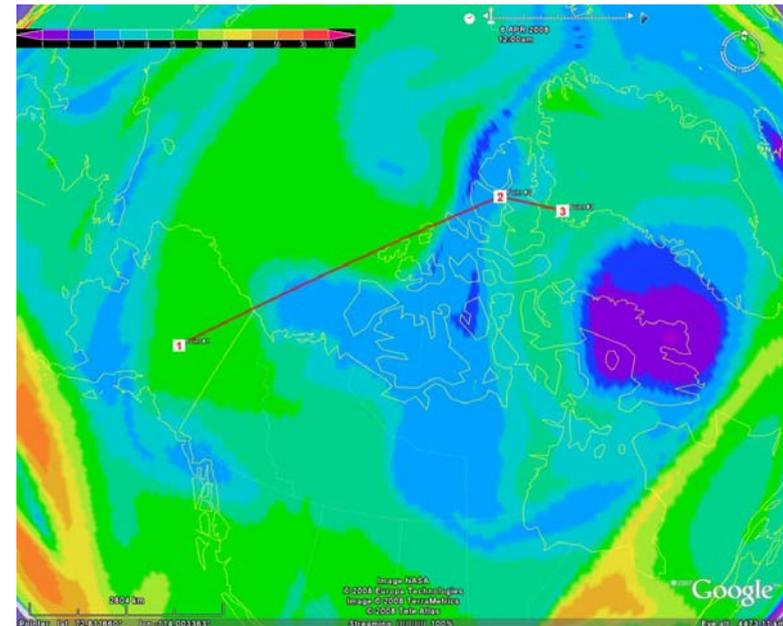
Thule Suitcase for both P3 and DC8 April 8



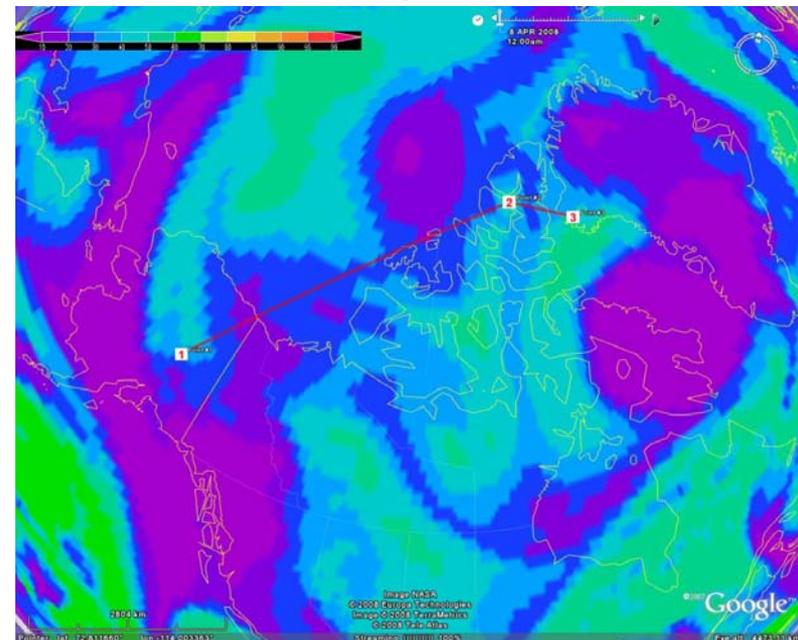
CO 8.4 km for DC8

Both Flight start at 12Z and go through Eureka

CO 5.5 km for P3

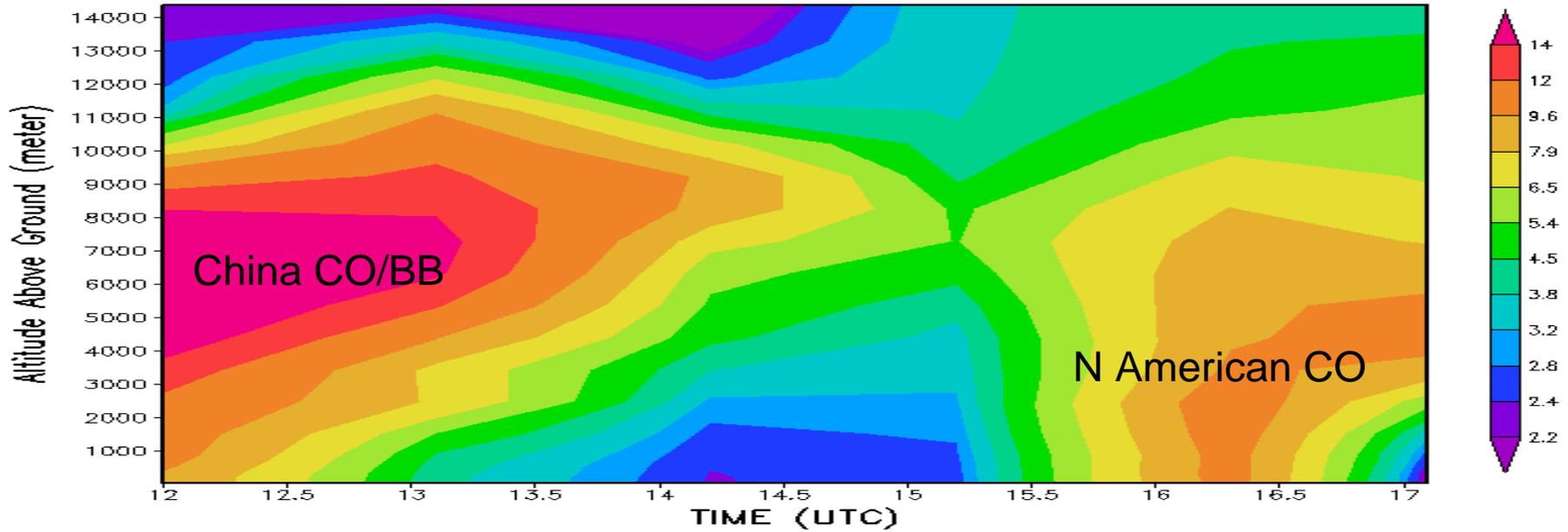


RH 8.4 km

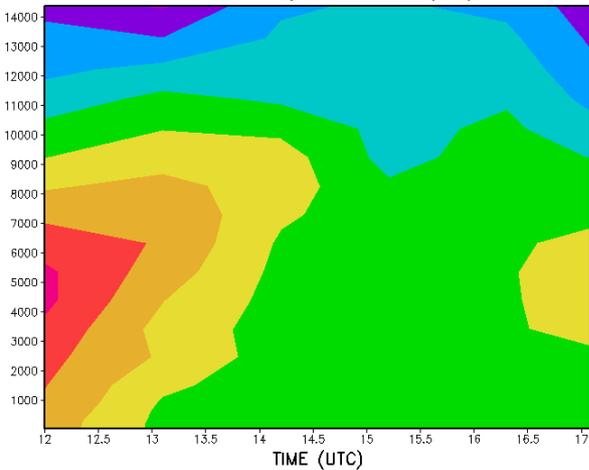


FAI to Thule for April 8 DC8 Flight Path

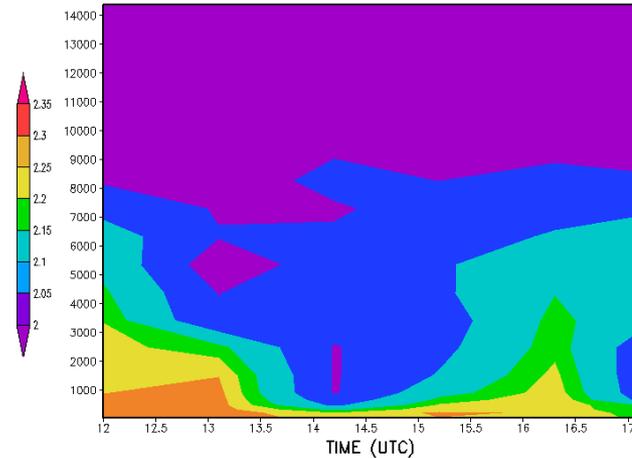
Simulated total CO (ppbv) along the DC8-Fb-Th Flight plan on 04/08/2008



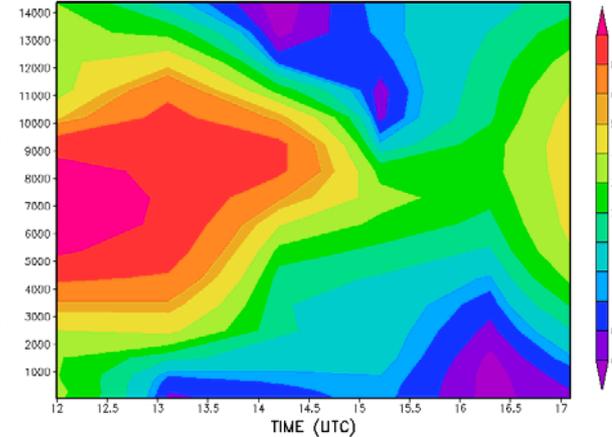
Simulated hg (ng/m³) along the DC8-Fb-Th Flight Path on 04/08/2008



Simulated Relative Humidity(%) along the DC8-Fb-Th Flight Path on 04/08/2008



Simulated Dust (μg/m³) along the DC8-Fb-Th Flight Path on 04/08/2008



Eureka & Surrounding Total AOD

Latest Forecast

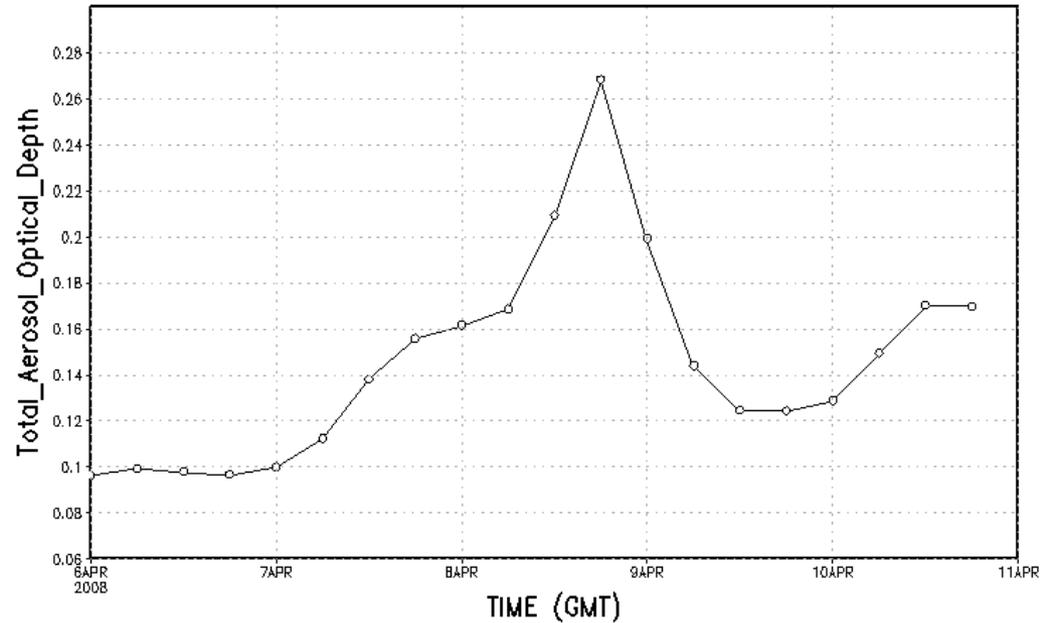
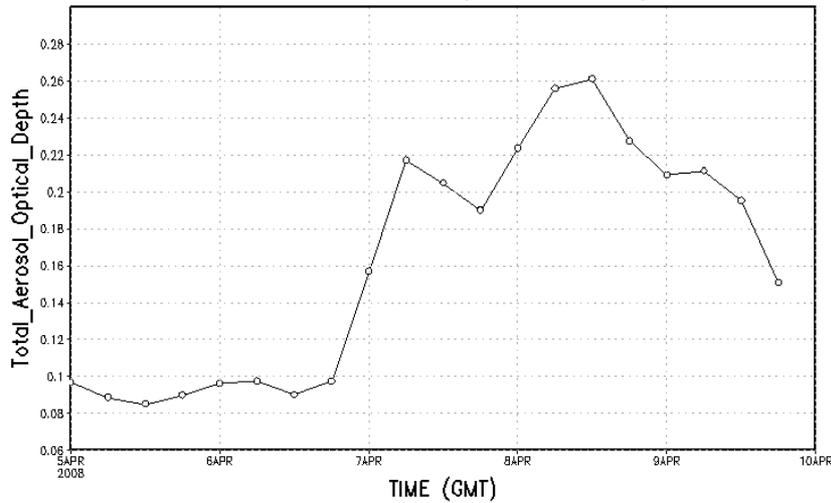
Yesterday Forecast

CORER, University of Iowa

Simulated Time Series Total Aerosol Optical Depth
over X=105 Y=100 (86.09W, 79.57N)

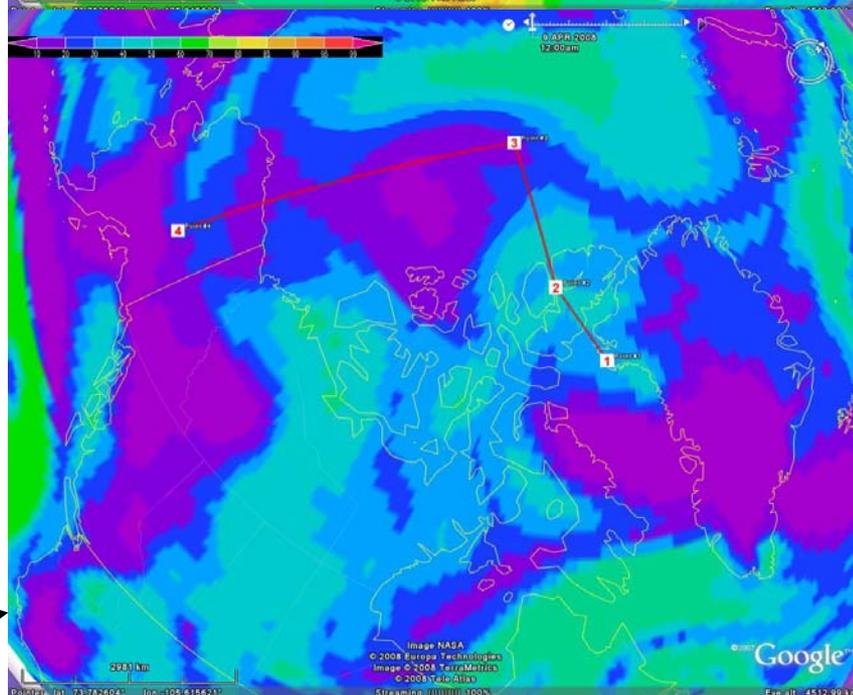
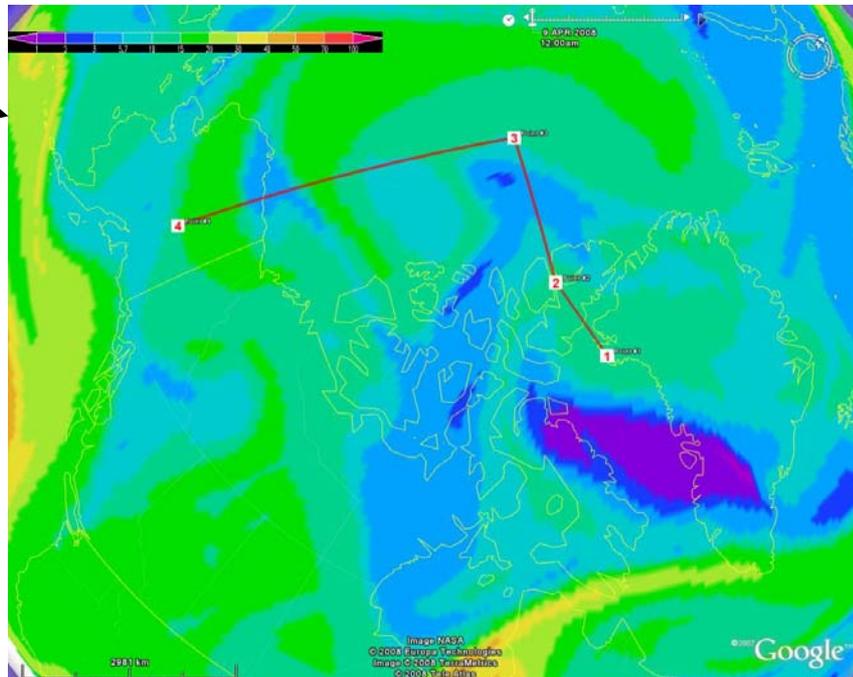
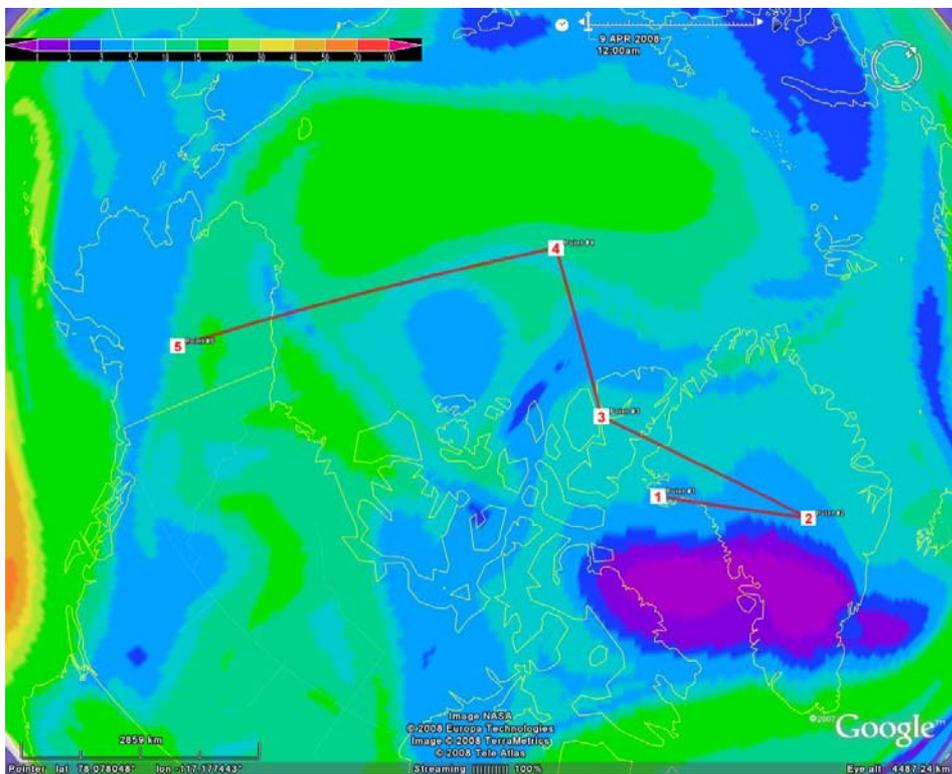
CORER, University of Iowa

Simulated Time Series Total Aerosol Optical Depth
over X=104 Y=100 (86.88W, 79.42N)



For P3 CO-5.5 km

DC8 - and P3 Return 9 April

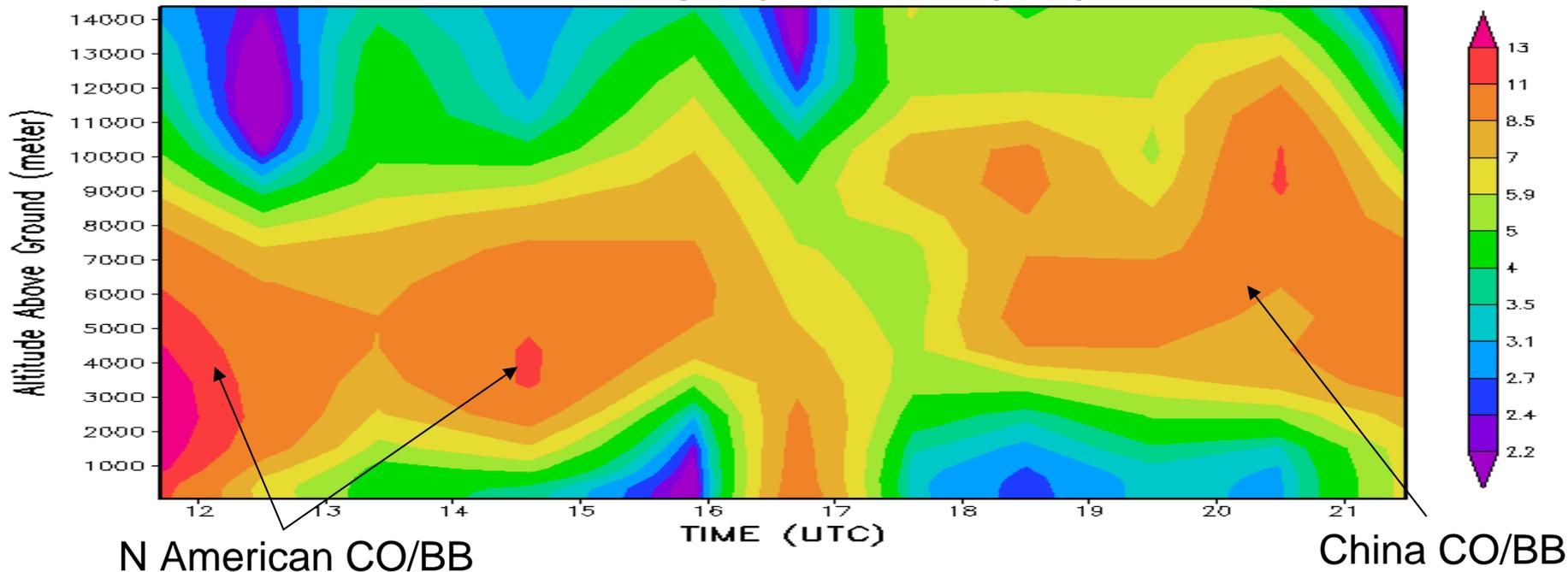


For DC8 – Anthropogenic CO, 8.4 km, 12Z

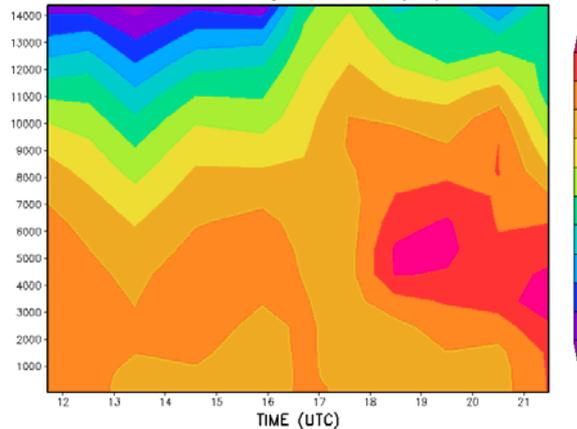
RH-8.4

Thule to FAI for April 9 DC8 Flight Path

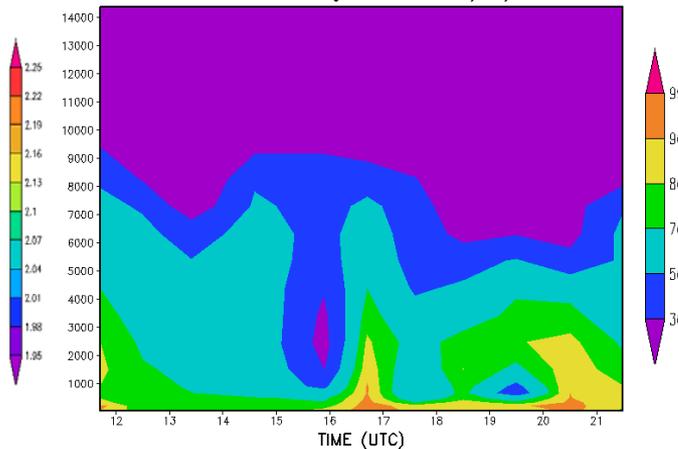
Simulated total CO (ppbv) along the DC8-Th-Fb Flight plan on 04/09/2008



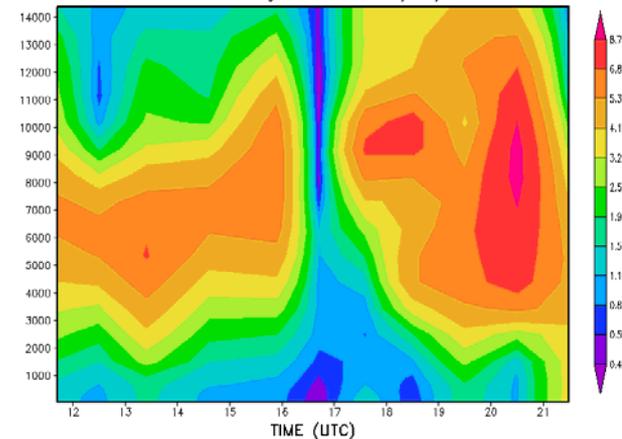
Simulated hg (ng/m³) along the DC8-Th-Fb Flight Path on 04/09/2008



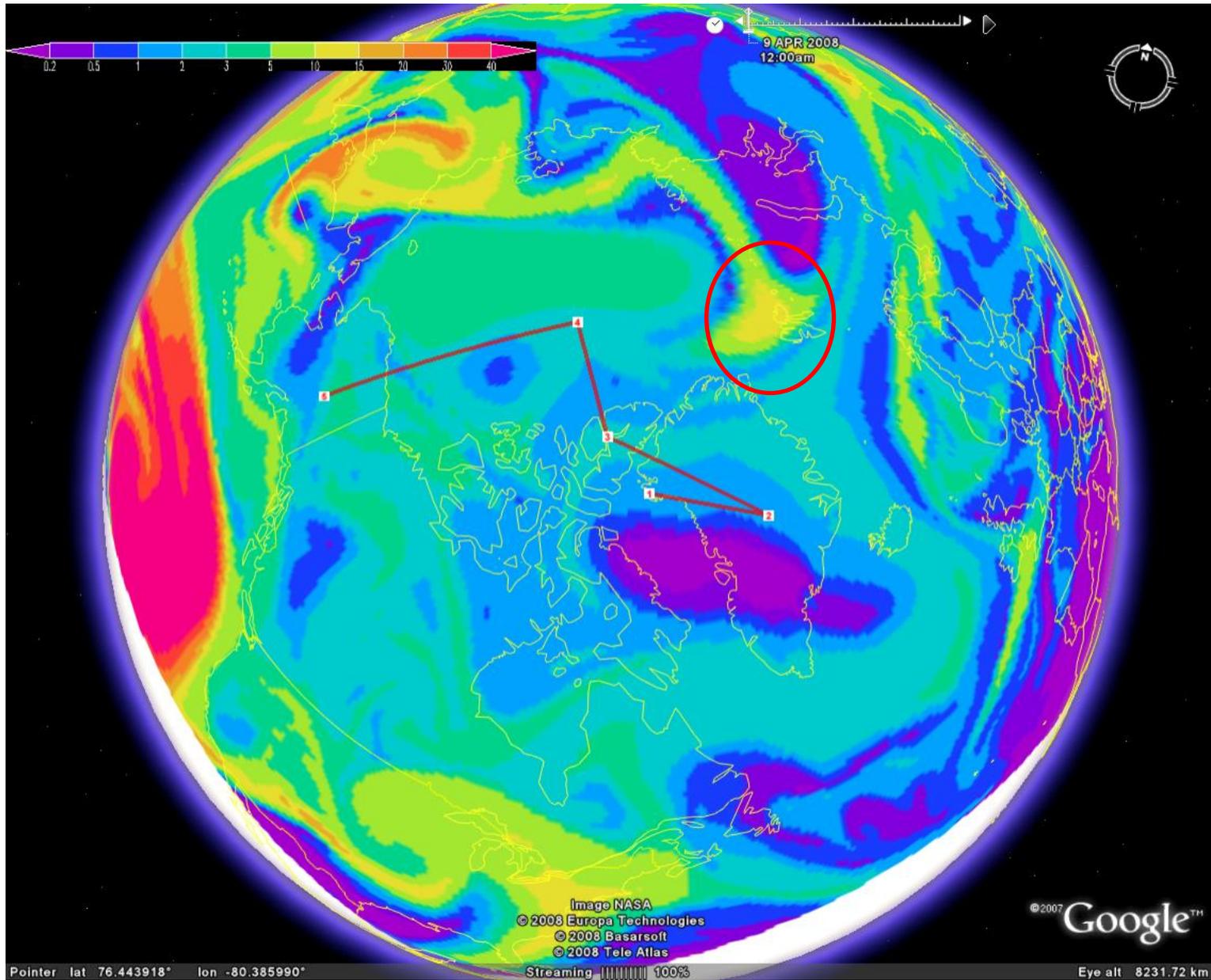
Simulated Relative Humidity (%) along the DC8-Th-Fb Flight Path on 04/09/2008



Simulated Dust (μg/m³) along the DC8-Th-Fb Flight Path on 04/09/2008

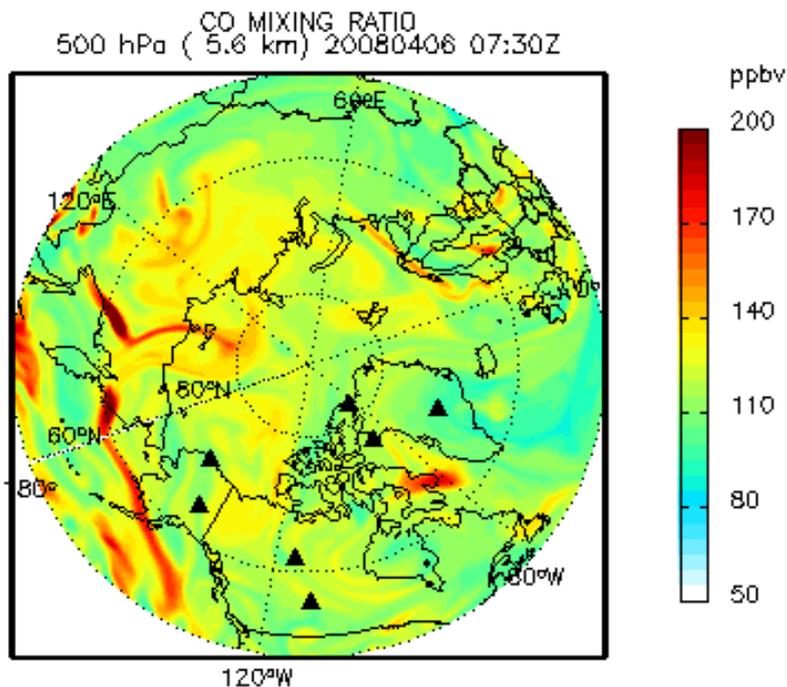


Biomass-CO on the 9th for DC8 ??

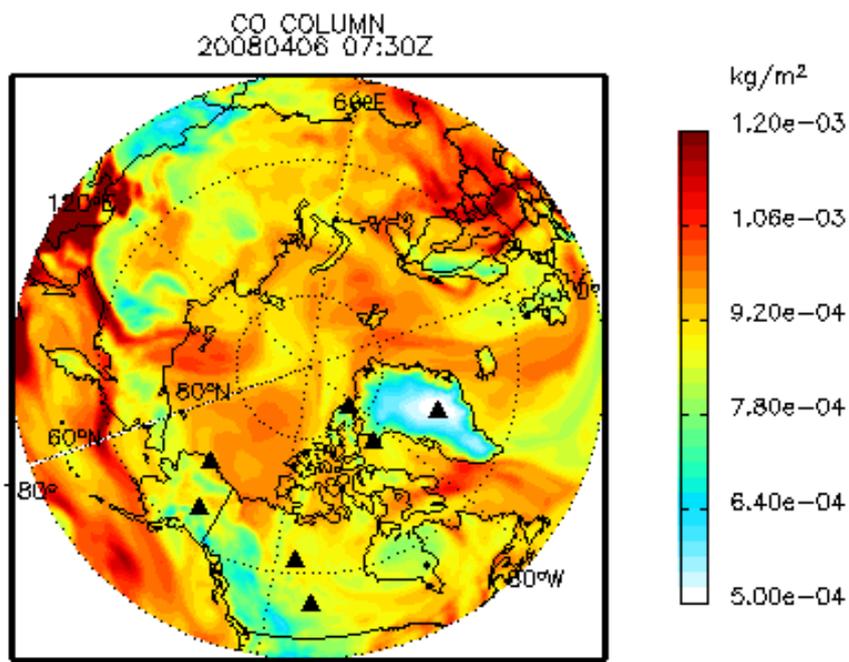


CO evolution: 4/6 – 4/11

500 mb CO

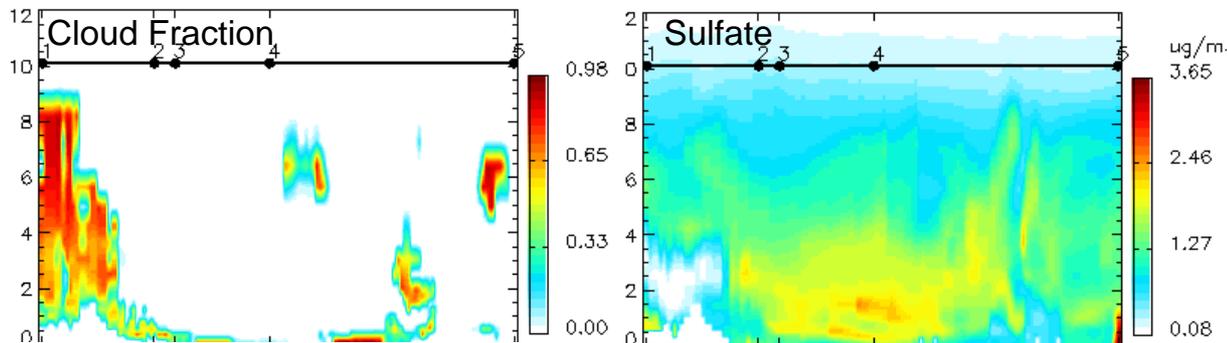
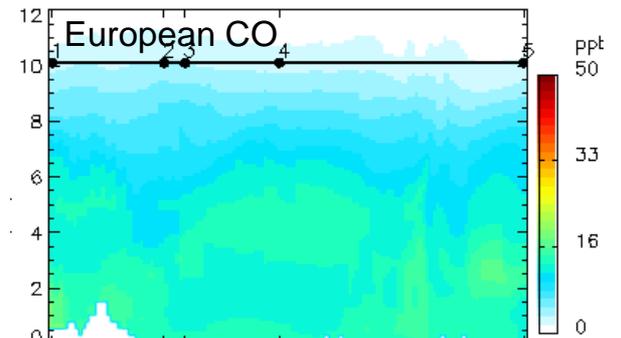
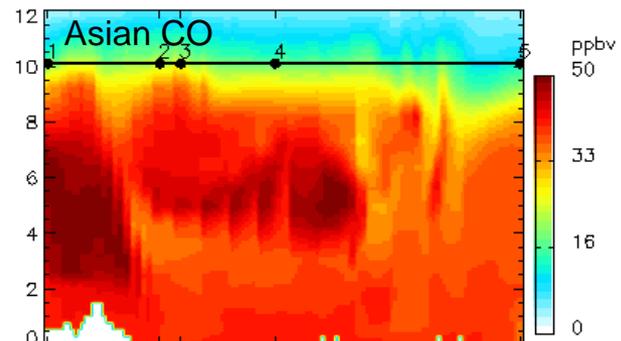
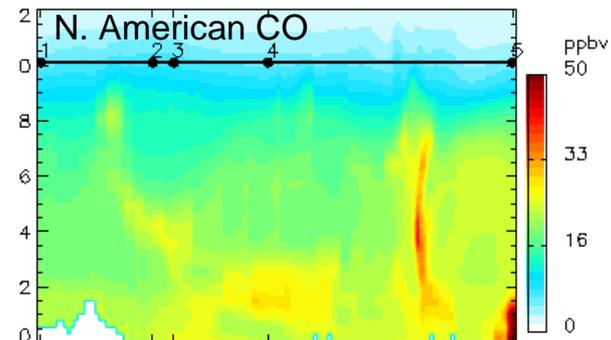
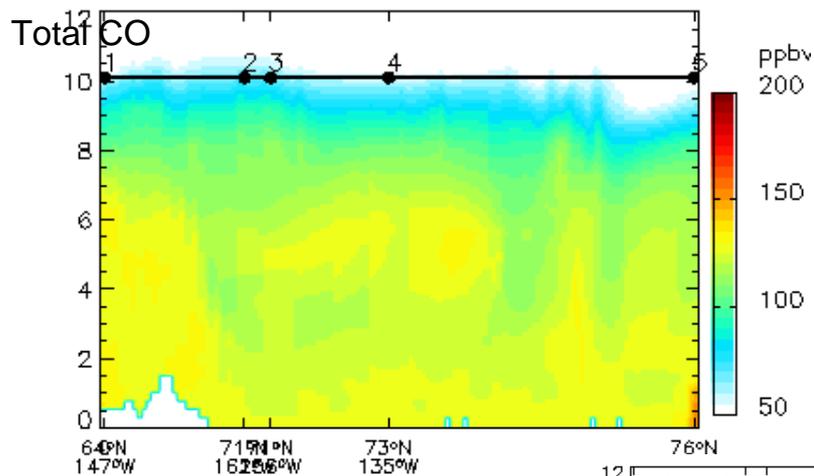
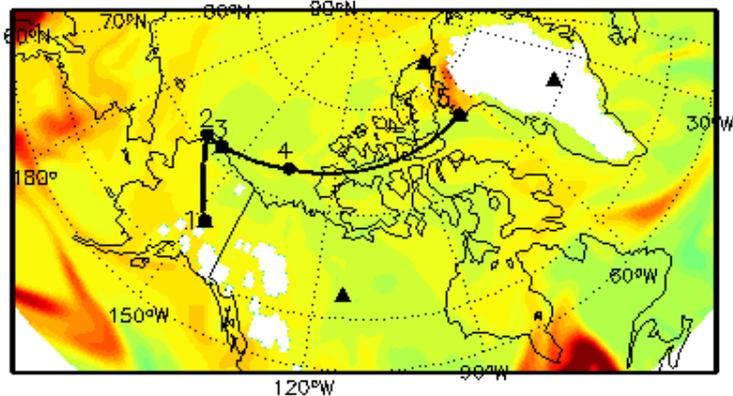


Total CO Column



DC-8 Flight Opportunity 4/8

Total CO

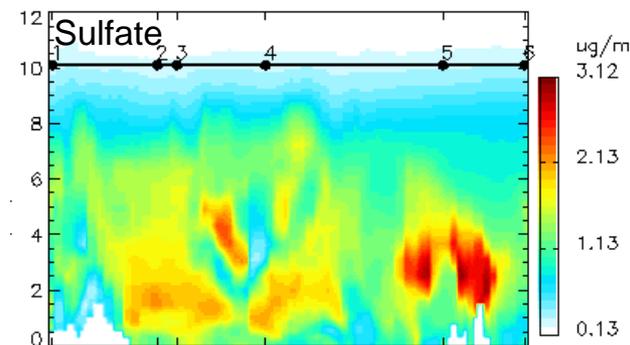
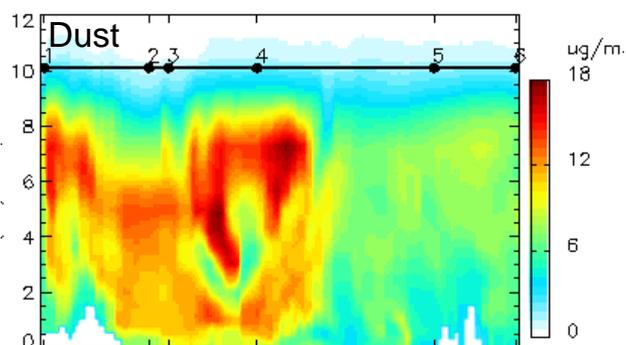
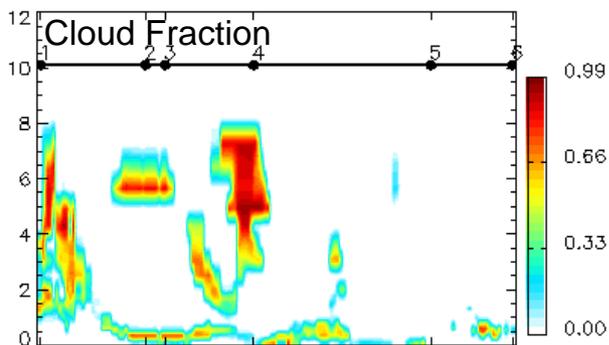
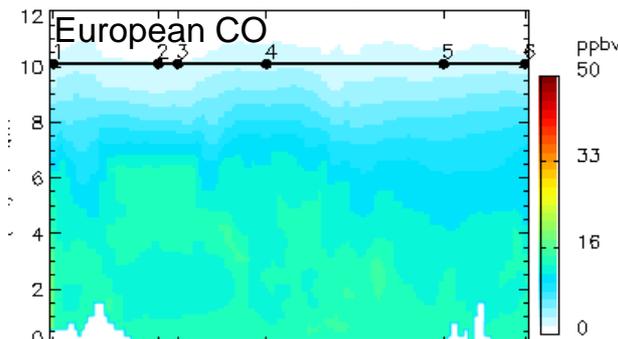
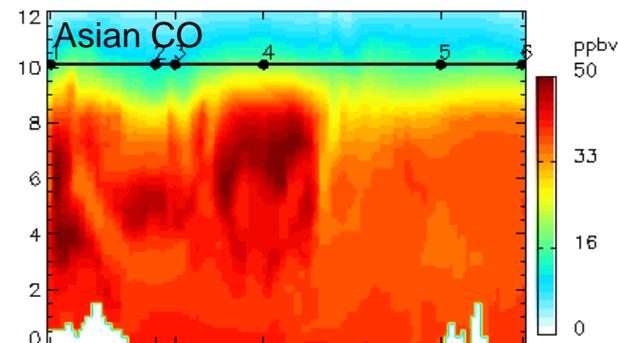
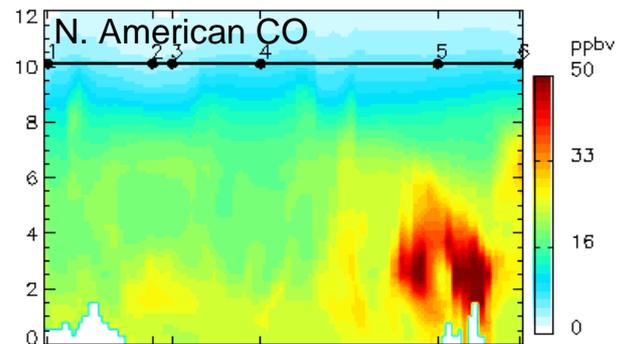
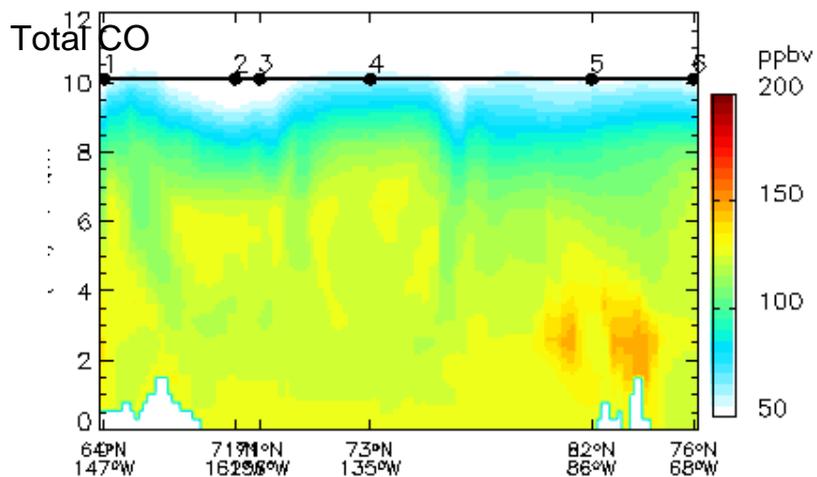
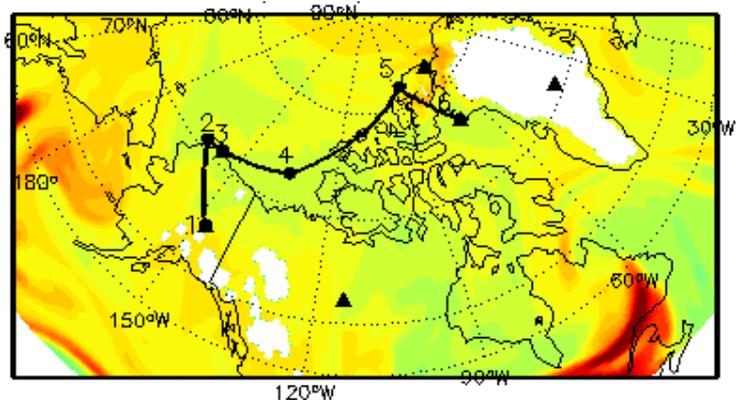


Features:

- TES track near Barrow
- Fair winds (easterly) for BrO at Barrow
- Stagnating air near point 4

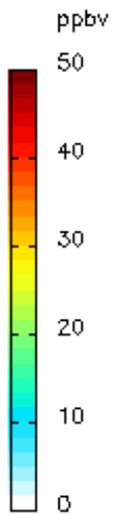
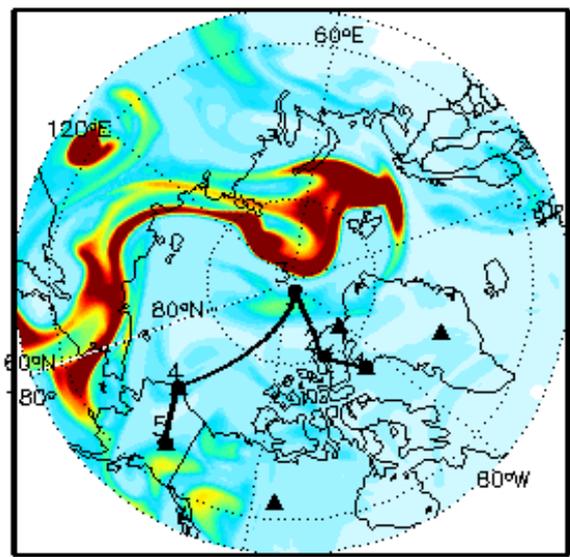
DC-8 Flight Opportunity 4/9

Total CO

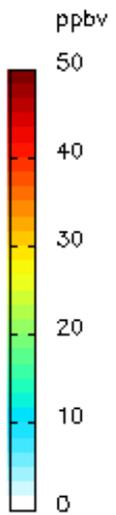
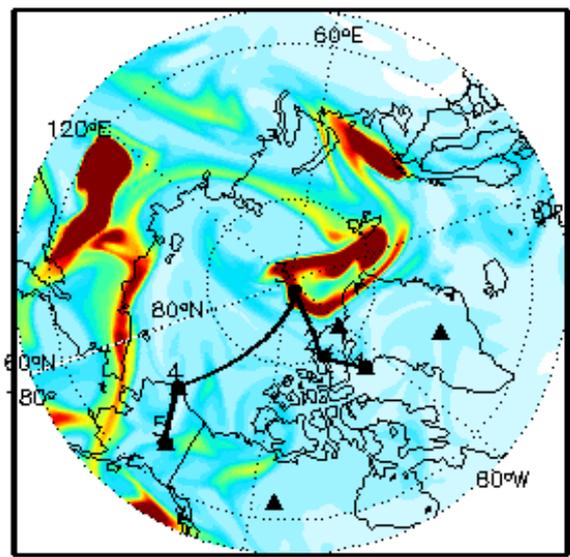


DC8 Thule transit: April 8/9 or 9/10?

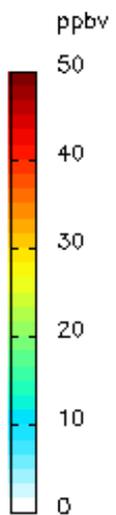
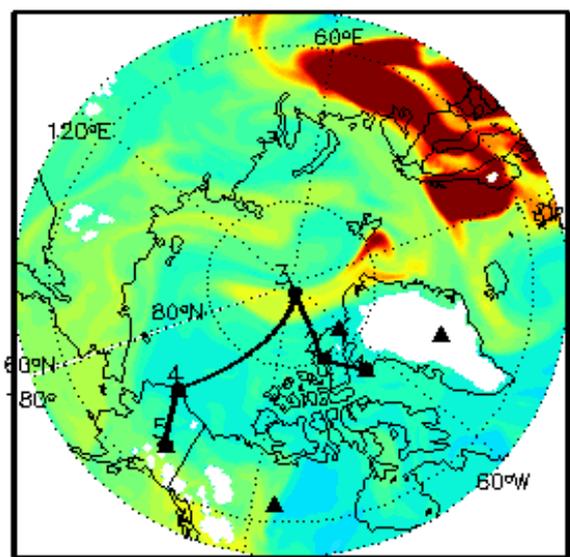
April 9 Boreal burning (500 hPa)



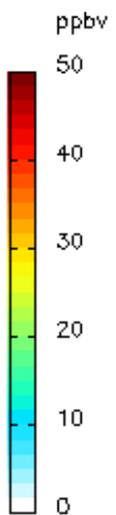
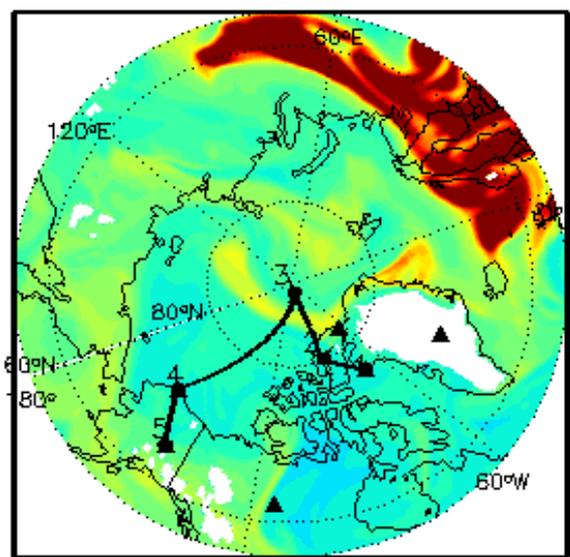
April 10 Boreal burning (500 hPa)



European CO (850 hPa)

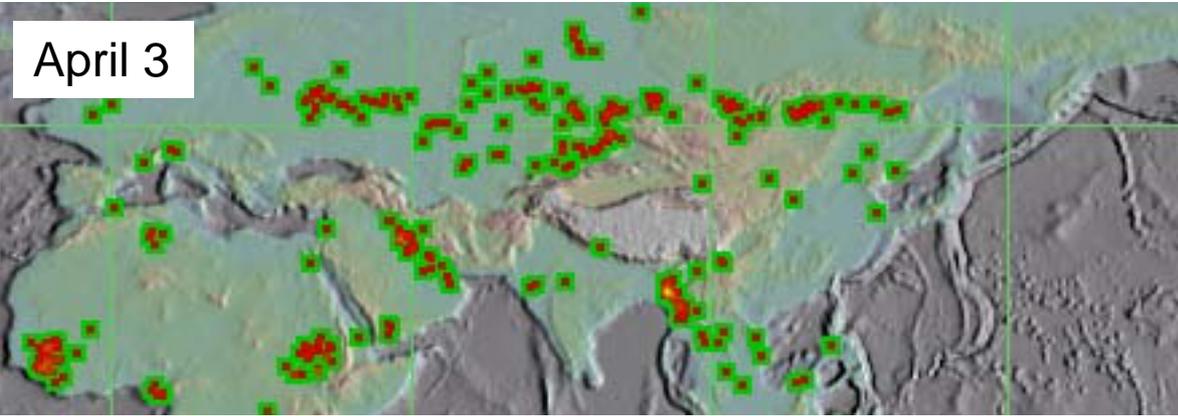


European CO (850 hPa)

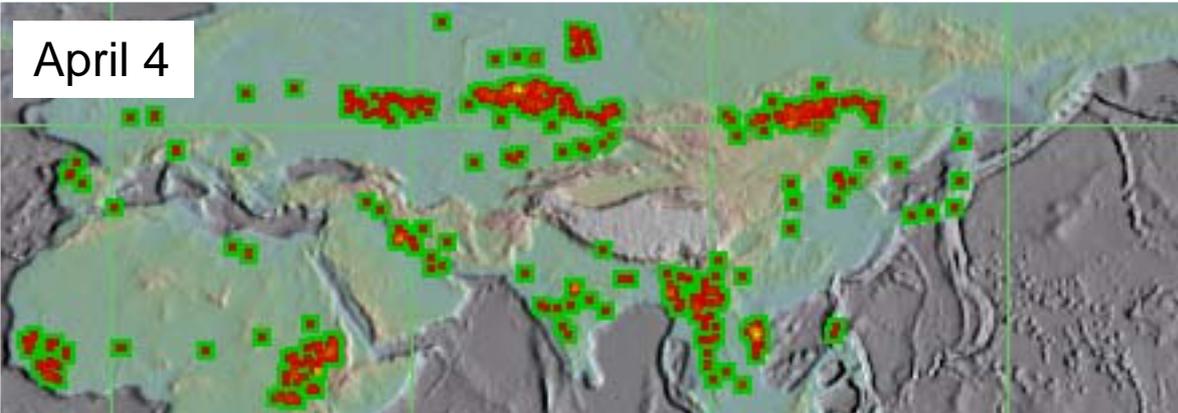


MODIS Hot Spots

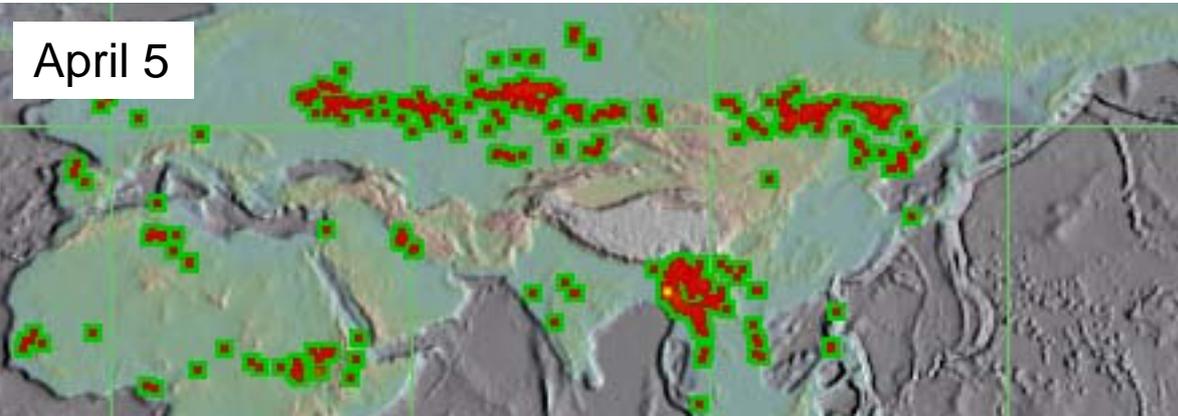
April 3



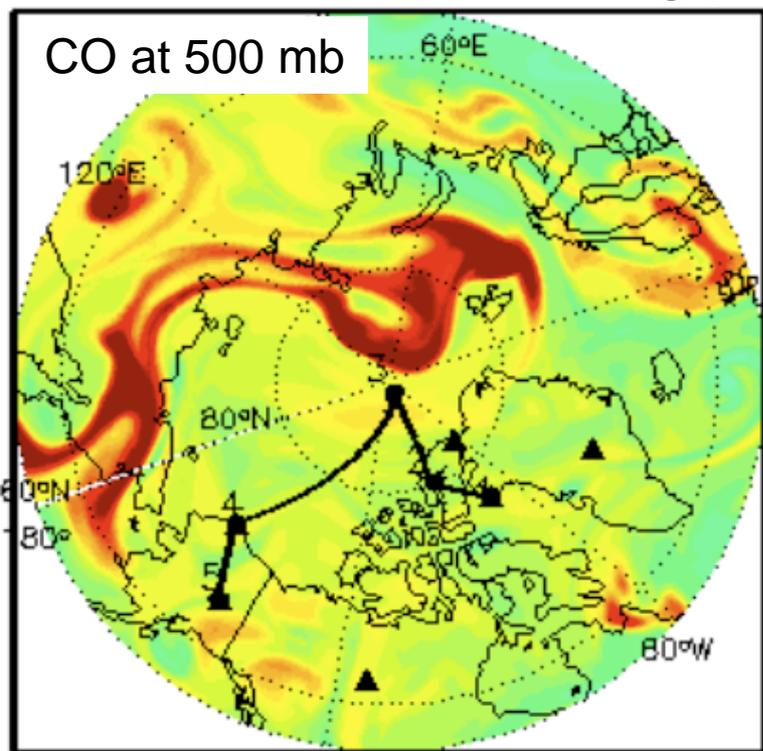
April 4



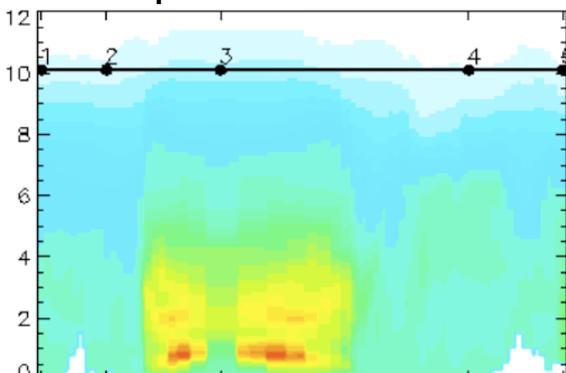
April 5



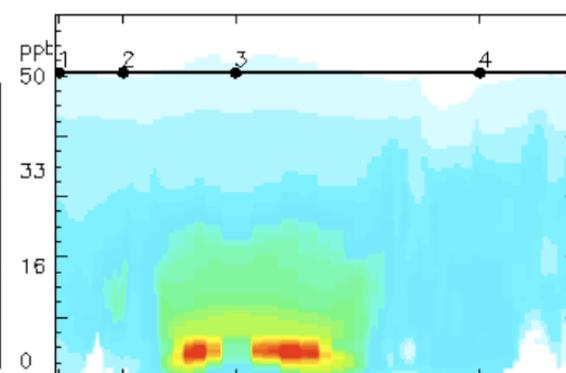
April 9 return: capture haze but miss boreal biomass burning plume



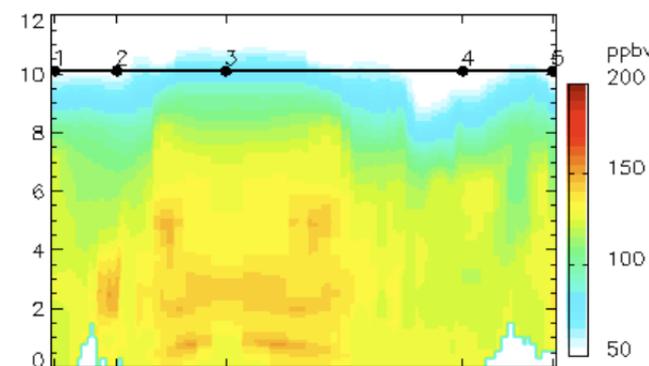
European CO



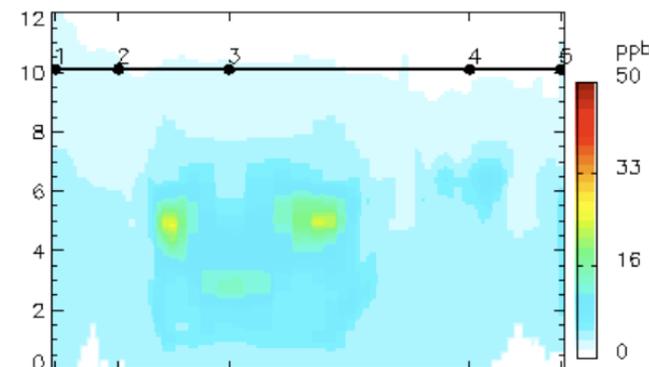
Sulfate aerosol



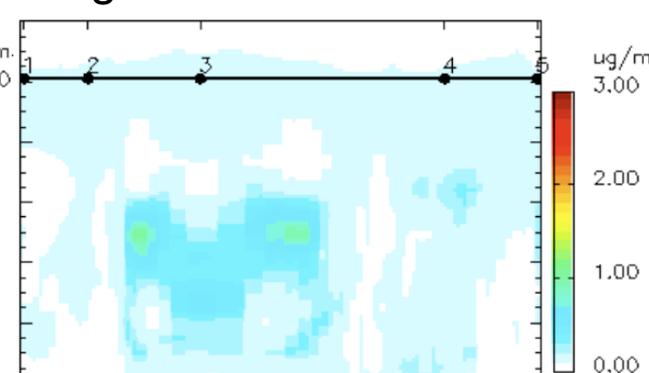
Total CO



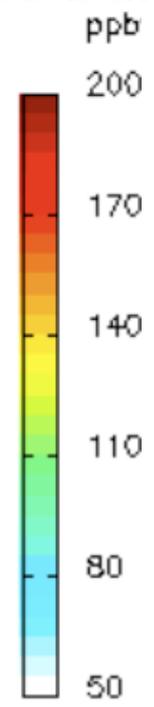
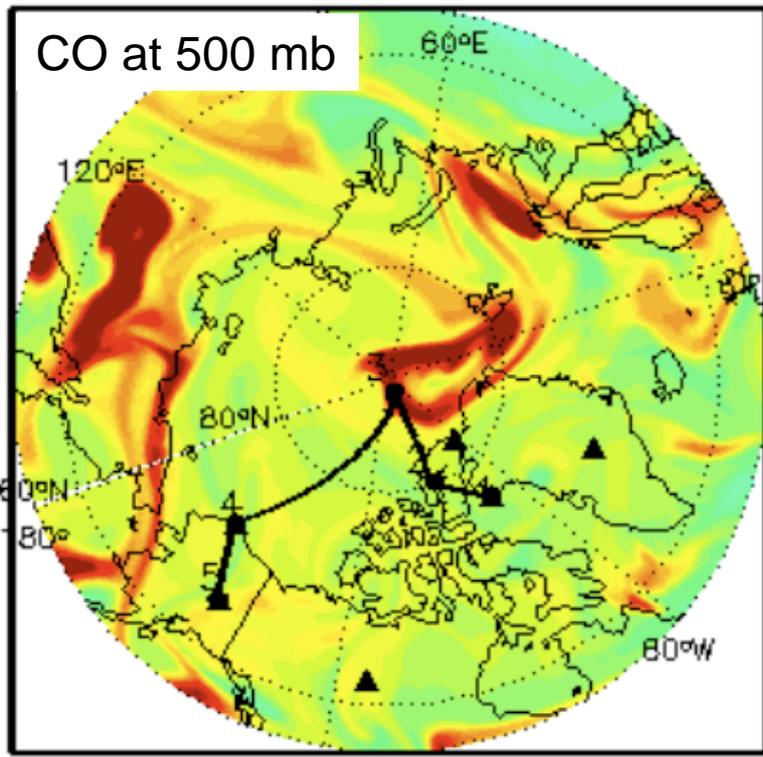
Boreal biomass burning CO



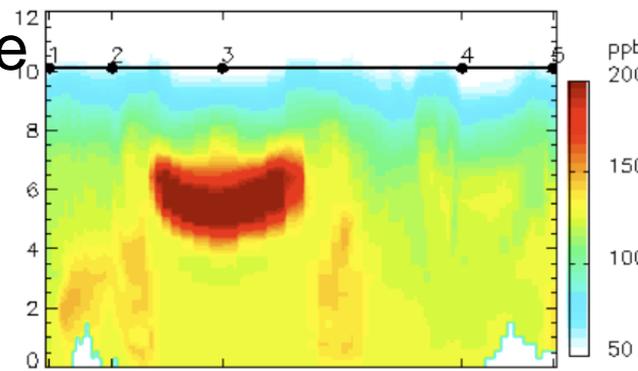
Organic Carbon



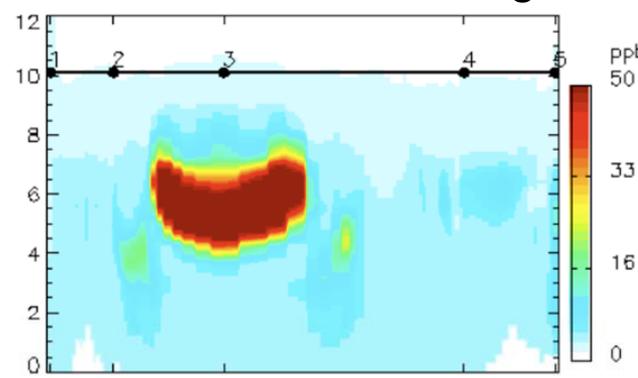
April 10 return: lower levels of haze but much stronger boreal biomass burning plume



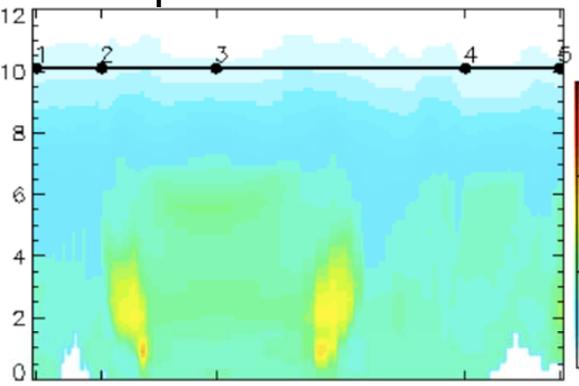
Total CO



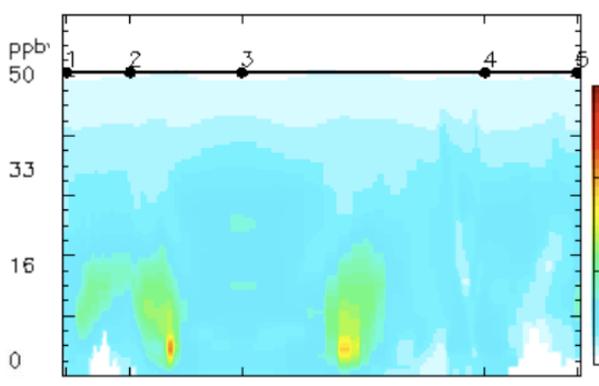
Boreal biomass burning CO



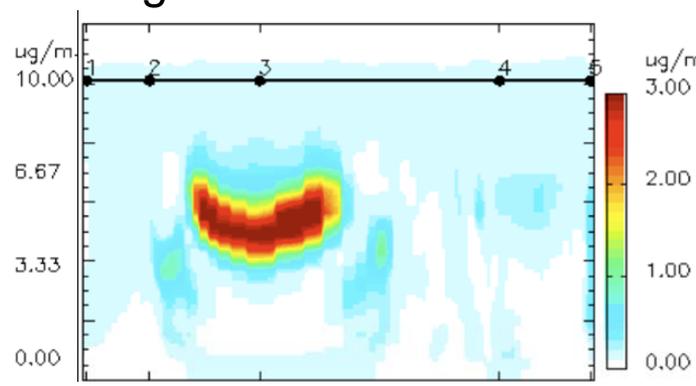
European CO



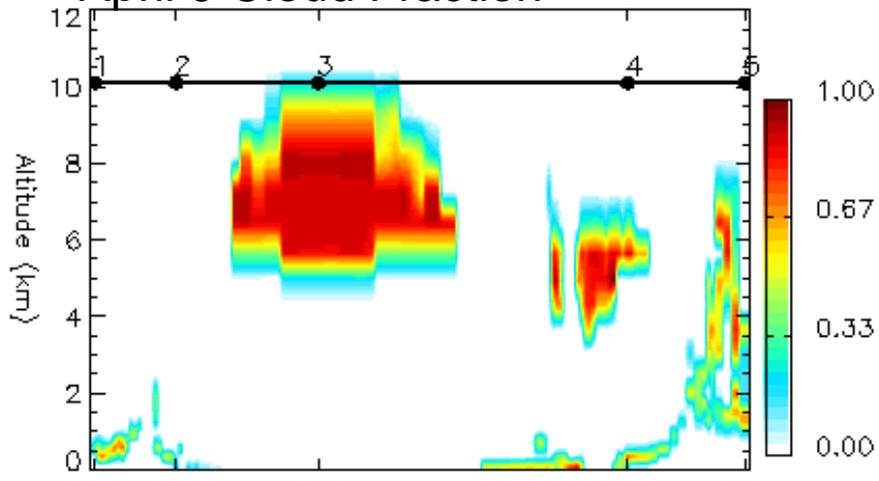
Sulfate aerosol



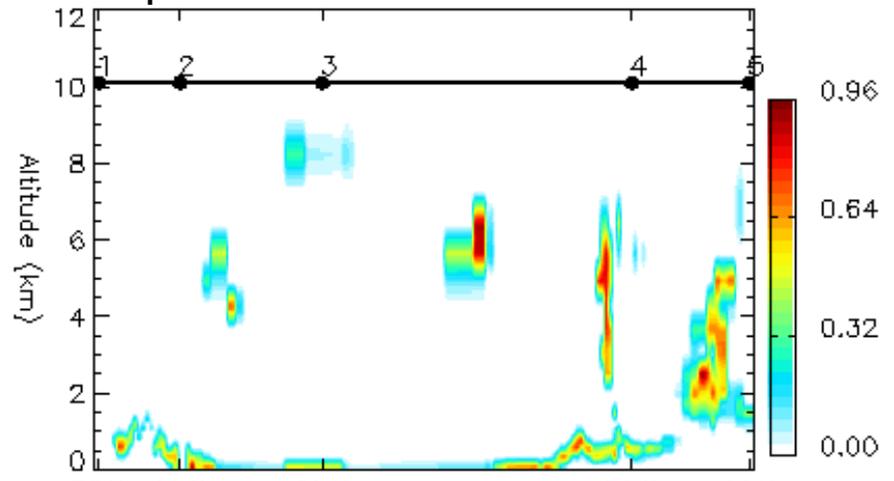
Organic Carbon



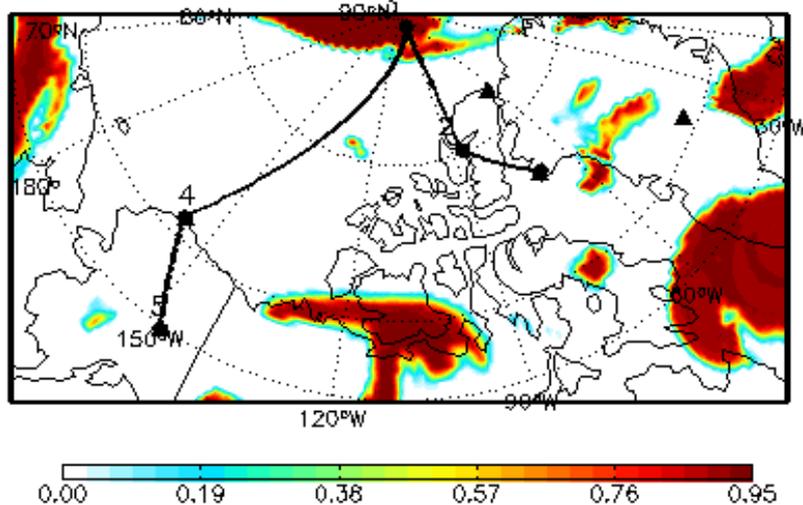
April 9 Cloud Fraction



April 10 Cloud Fraction



April 9 High Clouds



April 10 High Clouds

